

THE BOSTON Medical and Surgical JOURNAL

VOLUME 195

NOVEMBER 11, 1926

NUMBER 20

NEW ENGLAND SURGICAL SOCIETY

CAESAREAN SECTION AFTER THE DEATH OF THE MOTHER*

Report of Two Cases

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THIS paper gives a report of two cases of Caesarean Section after the death of the mother with survival of the two children. The paper deals also briefly with the advisability and method of doing such a Caesarean Section on a dead woman when the child is viable. It also quotes opinions from authoritative lawyers concerning the possible civil or criminal responsibility of the doctor performing a post mortem Caesarean Section. A consideration of this operation may be of interest, not alone to surgeons but also to physicians, because of the opportunity that may present itself of rescuing a child from death. A number of successful cases are on record where living children were delivered from dead mothers by the prompt action of hospital internes.

CASE I. Mrs. F., age 25. October 10, 1923. St. Vincent Hospital.

The writer saw with Dr. Cummings a woman who had just died while in the first stage of labor from eclampsia. A post mortem Caesarean Section was done, and a baby, apparently asphyxiated, was delivered. The baby revived. The time from the death of the mother to the delivery of the baby was five minutes. The baby is now alive and in good health.

CASE II. Mrs. R., age 38. October 25, 1924. St. Vincent Hospital.

Caesarean Section after death. Attended by Dr. J. J. Cummings and Dr. J. J. Dumphy. Patient died suddenly of eclampsia in the first stage of labor. Examination showed undilated os with no prospect of delivery from below. After some delay in interviewing her people post mortem Caesarean Section was done. The baby was blue when delivered but revived readily. The time from the death of the mother to the delivery of the baby was at least ten minutes. The child is now alive and apparently healthy.

Post mortem Caesarean Section is said to be the oldest operation in Obstetrics. Even ancient Mythology refers to the reputed births of Bæcehus and Aesculapius by post mortem Caesarean Section. The Law of Numa Pompilius—the so-called *Lex Regia*, 715 B. C.,—decreed that no woman who died during pregnancy should be buried until her child had been removed.

Until recent times it was exceptional to get a

living child by post mortem Caesarean Section. Schöps¹ quotes one series of statistics of 107 cases between the years 1836 and 1846 in which not one living child was extracted; and again, of 90 cases between the years 1852 and 1868 with no living child. Of late, however, the statistics, as regards the delivery of living children, are far more encouraging.

Bohmer² recently reported a series in which 60 percent of the children were saved. Pfaff³ reports that in 52 cases of post mortem Caesarean Section the life of the child was saved twenty-two times; lost thirty times.

We profit by our mistakes, and we know now that the chief factor in getting a living child from the dead mother's womb is the promptness with which we operate after the mother's death. The rescue of the imprisoned child brooks no delay.

Timely preparation for the operation should be made whenever possible. The pronouncement of death of the mother may come from one doctor, but it is better that it come from two doctors, since we all know how difficult at times it is to decide as to the exact moment of death. There are cases on record where a woman supposedly dead was operated, but revived and lived. Recently, in Scotland, Dr. Haig Ferguson⁴ did a Caesarean Section on an apparently dead woman. He closed up the abdomen with what he designated as a "post mortem stitch." To his surprise the mother revived and recovered; incidentally, the child also lived. Pronouncement of death by two doctors and permission from the husband to perform the operation may save embarrassment to the doctors if the patient should breathe after the incision is made; although the husband's permission, if the woman is actually dead, is not necessary as we shall see later.

What is the best and most rapid method of extracting a living child from the womb of its dead mother? Experience has shown that attempt to deliver the child from below has generally resulted in the death of the child. Where, however, the os is fully dilated, and the head in the outlet, a forceps delivery, sufficiently rapid,

*Read before the New England Surgical Society, October 2, 1926.

may save the child. But, in general, the operation of choice should be Caesarean Section.

There should be no delay in trying to hear the fetal heart. The child may be alive but its heart too feeble to hear.

The operation, perhaps, that will take the shortest time, and can be done in less than two minutes is a long abdominal wall incision half above and half below the navel; delivery of the body of the uterus through this abdominal wall incision; then, a longitudinal incision through the middle of the fundus and carried through the anterior and posterior walls of the uterus sufficiently long to extract the child with ease.

It is always prudent to take out the placenta, since uterine contraction may force out the placenta into the vagina with embarrassing results. G. W. Yule⁴ describes a post mortem Caesarean Section in a twin pregnancy where he had delivered the child, and, "on attempting to remove the placenta, a second child was felt." This child was extracted and lived.

As regards the length of time that a child may continue to live in its mother's womb after her death; Linzenmeier⁵ says that there are on record examples of such children living, who were delivered by Caesarean Section twenty minutes after the mother's death. Bacon⁶ says, "There is no case on record where the child has lived later than twenty-three minutes."

In the report of ten cases of post mortem Caesarean Section by Harrar⁶ the longest interval between the death of the mother and the delivery of the living infant was seven minutes. "One baby delivered after an interval of twenty minutes had a feebly beating heart, but never made any attempt at respiration."

An interesting case was that of Yule⁴ in a twin pregnancy; the first child, extracted five minutes after the death of the mother, was dead; the second child, extracted ten minutes after the death of the mother, lived. This case was unique since the maternal circulation had stopped at the same time in each placenta.

While not strictly relevant to the title of this paper, it may be profitable to consider for a moment the question of Caesarean Section on a dying woman. This operation demands a skilled technician, whereas a Caesarean Section on a dead woman may be done by anyone. DeLee⁷ says concerning the operation on a dying woman, "If the woman's death is only the matter of a few hours, this being the opinion of a consultation of physicians, and the child is living and viable, the operation is indicated; but here, legally, it is needful to get the consent of the husband or the next of kin."

As regards the possible civil or criminal responsibility of a doctor who performs a post mortem Caesarean Section without the consent of the husband or next of kin: Bacon⁶ has discussed this subject very thoroughly. He says,

"The obligation to save the human fetal life when it can be done without destroying or seriously jeopardizing another life is absolute."

And, again, he says, "In some countries, for example, Austria, the *Lex Regia* still exists with little change. In Bavaria, Württemberg and Saxony section is required after the sixth month, or after the child is viable. In some countries the necessity for and the right to do the operation appears to be left to the attending physician. In this country, I have not been able to find any statistics nor common law decision on the subject."

A. F. Reichmann, Esq.⁸ says concerning the legal aspect of a post mortem Caesarean Section, "The question under discussion, in so far as my reading and research have gone, is an entirely new one, and has never yet been even considered, much less determined by any court."

Bacon⁶ showed that the right of the husband to the control of his dead wife's body does not permit of its injuring another human being; that the viable fetus has the same right to live as any other human being and that this rule would require a post mortem delivery in every case where the fetus is of at least the twenty-eighth week of gestation and is known to be alive at the time of the mother's death.

Perhaps a parallel case to the refusal of a man to rescue a living child from the womb of its dead mother would be that of an adult who would refuse to rescue a child in the act of drowning in water dangerous to a child but shallow for an adult.

There are cases on record in which the father has refused to give permission to a doctor to perform a Caesarean Section on a dead mother, and a living child, as a consequence, has lost its life. Hence, the writer quotes from two lawyers legal opinions concerning the possible civil or criminal responsibility in performing a post mortem Caesarean Section.

Both of these lawyers, G. W. Whiteside, Esq.¹⁰, the then counsel to the Medical Society of the County of New York, and A. F. Reichmann, Esq.⁹, in Chicago, delivered their opinions before Obstetrical Societies of their respective cities.

Reichmann⁹ said, "I cannot escape the conclusion that given a case in which, in the light of existing scientific knowledge, the belief is reasonably justifiable that the infant may be rescued and its life saved, a Caesarean Section will be justified by the law on grounds of public policy and the person performing the same will be fully protected, both civilly and criminally, though performed without the consent, or even against the protest in those in whom the law has recognized a legal right to the possession of the body of the deceased, provided, of course, the operation be performed in good faith and with

due skill and without unnecessary injury or mutilation."

Concerning the possible civil or criminal responsibility of a doctor refusing to perform a post mortem Caesarean Section when the child is viable, G. W. Whiteside, Esq.¹⁰, said, "Homicide is defined by Section 1042 of the Penal Law as follows:—'Homicide is the killing of one human being by the act, procurement or omission of another.' . . . 'If either mother or child is killed by the omission of the surgeon to perform the operation, does it not seem clear that the definition of homicide is satisfied?' . . . 'If such omission resulting in death is without design to effect death but by culpable negligence, it would seem that such an offense might be considered as manslaughter in the second degree. This last analysis of criminal responsibility is purely speculative and not founded on any precedent. But, inasmuch as our statistics are interpreted in the light of scientific progress, what might not have been considered as culpable negligence half a century ago, today would be considered as grave culpable negligence. This principle is well founded in precedent and has found expression in cases where safety devices of recent invention readily avail-

able but unheard of and unknown half a century ago are omitted from use by those upon whom responsibility for their use rests. And when a human life is sacrificed through such failure and neglect, the Courts have considered such omission as constituting culpable negligence, and have held those responsible therefor upon a charge of manslaughter in the second degree. This is particularly true in the engineering field, and its application to medical surgery but awaits the opportunity which a specific case may afford.'"

REFERENCES

- 1 Schöps: Ueber zwei Kaiserschnitte an der Toten. Berl. klin. Wchnschr., 1918, LV, 221.
- 2 Pfaff, O. G.: Postmortem Caesarean Section. Am. Jour. Obst., N. Y., 1916, LXXIV, 967-972.
- 3 Ferguson: Discussion Yule's Paper. Edinburgh Med. Jour., Apr., 1926.
- 4 Yule, G. W.: Post-Mortem Caesarean Section in Twin Pregnancy with Survival of One Child. Edinburgh Med. Jour., Apr., 1926.
- 5 Linzenmeier, G.: Der Kaiserschnitt an der Toten und Sterbenden. Med. Klin., Berl., 1920, XVI, 429-442.
- 6 Harrar: Post Mortem Caesarean Section—Case Reports. Am. Jour. Obst., N. Y., 1916, LXXIII, 1046.
- 7 DeLee: Principles and Practice of Obstetrics, second edition, p. 1031.
- 8 Bacon, C. S.: Legal Aspects of Post Mortem Caesarean Section (Chicago Gynecological Society), 1911, 12, 165-177.
- 9 Reichmann, A. F.: Surg., Gyn. and Obst., Dec., 1911, p. 176.
- 10 Whiteside, G. W.: Am. Jour. Obst., 1916, 73, 1057.

ORIGINAL ARTICLES

IODINE HYPERSENSITIZATION*

BY STEWART H. CLIFFORD, M.D.

IDIOSYNCRASIES to the internal administration of iodides and irritations resulting from the local application of iodine are well recognized but extensive reactions following minute local applications of iodine in the usual strengths are of sufficient rarity to justify this report.

Out of a series of 14,000 iodine applications Rutherford¹ encountered but three untoward effects; one was a pemphigoid, bullous eruption filled with a clear serum and involving the left lower extremity six days after the left knee had been painted with tincture of iodine; another followed three days after tincture of iodine had been applied to a hand wound and consisted in an extensive bullous dermatitis involving the entire arm; the third was a painless, swollen, purple ecchymosis of the left leg following two days after the patellar region had received iodine. Herzog² saw many cases of vesicular dermatitis neighboring on war wounds, but an editorial³ in the *British Medical Journal* maintains that in these cases the iodine had become concentrated in open vessels and was still further concentrated when it was applied on cotton swabs. Happel⁴ applied less than a drop

of tincture of iodine to a cervical canal and 17 hours later his patient developed an intense itching and burning of the skin, a sensation of swelling of the face and hands, and cried out, "They used iodine on me." Nine years before, iodine had produced a similar experience. Happel found that adrenalin completely controlled this attack and caused immediate disappearance of the symptoms. Buschke and Ollendorf⁵ report a case possibly sensitized to iodine 16 years before, which developed an iodide skin eruption following KI by mouth. After the lesions had healed iodine was applied to the skin and an erythematous, vesicular, localized dermatitis resulted.

CASE REPORT

CASE 276966. A white, American housewife, aged 27, applied "iodide petrogen" to the flexor surface of the right wrist in November, 1918. The site of the application became erythematous and itchy and several days later vesicular lesions appeared. Ten days later a "toxic erythema of a scarlet-red urticarial type appeared across the chest and upon the right side of the neck." Two weeks after the iodine had been applied she showed "a solid, coalescing mass of large vesicles and bullae, showing no tendency to rupture, and looking like fish spawn" on the right wrist and posterior two-thirds of that arm. The original site

*From the Dermatology Service of the Massachusetts General Hospital.

of the application had no vesicles and appeared normal.

On June 12, 1926, this same patient, who in the meantime had enjoyed perfect health and had had

plete the similarity to the earlier picture, on the eighth day she had an erythematous rash over the right pectoral region. A drying carbolized wash was applied until the lesions became dry and then a sooth-



FIGURE 1



FIGURE 2

no skin disorders, cut the palm of the left hand and the tip of the right fore-finger on a broken bottle. Despite the patient's protests, her doctor applied tincture of iodine. Two days later vesicles began appearing on the hands; by the fifth day she demonstrated (see Figure 1 and Figure 2) vesicular and bullous lesions over both hands and arms, exactly as had been described eight years earlier. To com-

ing paste was applied. Recovery was uneventful and the patient was discharged well on June 28, 1926.

REFERENCES

1. Rutherford, Wm. J.: *Brit. M. J.*, London, 1915, I, 84-6.
2. Herzog, Prof. W.: *Munch. med. Woch.*, Dec. 1, 1914. Referred to in an editorial in *Brit. M. J.*, 1915, I, 441-2, Mar. 6, 1915.
3. Happel, H. E.: *J. A. M. A.*, 76:1164, Apr. 23, 1921.
4. Buschke, A., and Ollendorf, H.: *Deutsche med. Wchnschr.*, 51:2192-2119, Dec. 18, 1925.

ACUTE CHOLECYSTITIS, CHOLELITHIASIS AND ACUTE APPENDICITIS IN A CHILD AGED 11 YEARS

BY HARRY C. CLIFTON, M.D., AND BENEDICT B. LANDRY, M.D.

PATERSON AND WYLLIE quite recently reported a case of cholelithiasis in a girl aged 9 years and 5 months; Judd, a case in a boy of 8 years. Watson in a study of 409 cases found none under the twentieth year. Still, quoted by Paterson and Wyllie, collected twenty-three cases of which ten were in infants. Ransohoff states that "inflammation of the gall-bladder and particularly gall stones are exceedingly rare in very young children, although small stones have been found in the new-born."

The following case is that of a girl aged 11 years and 2 months, American born, who was taken ill five days before admission to the hospital. At that time she was suddenly seized with severe, sharp pains throughout the entire abdomen which continued until her entrance to the hospital. It was stated that

there had been no bowel movement for six days. There was no jaundice, no clay-colored stools, and vomiting occurred only the day before entering the hospital. She was seen at the hospital and found to have a temperature of 102, a pulse rate of 120 and respirations 20 per minute. The physical examination was negative except in the abdomen. There was tenderness over the entire abdomen, especially on the right side, with slight distension and marked rigidity in the region of the gall-bladder and over McBurney's point. The patient stated that there was pain at times darting through to the right shoulder, especially when any deep pressure was made over the gall-bladder (gall-bladder region indicated by patient).

The Past and Family Histories were irrelevant. The white blood count was 15,800, polymorphonuclear leucocytes 81%, small lymphocytes 12%, large lymphocytes 5%, and eosinophils 2%. The coagulation time was 2½ minutes. The urine was amber, acid, with a specific gravity of 1.027, and having a trace of both albumin and acetone.

Because the five-day course of her illness was atypical of an acute appendiceal condition alone, and because from the history and physical examination, despite her youth, probable disease of the gall-bladder



Size of gall stones as compared with that of a quarter.

was thought to be present, a 7 cm. high incision splitting the right rectus muscle was made. After opening the peritoneum, a moderately acute appendix was delivered, removed with the actual cautery, and its stump was invaginated and purse-stringed. The right upper abdomen was then explored. The liver was

swollen in appearance and congested. The gall-bladder was very distended and tense, its walls thickened and reddened. Congenital adhesions, attaching it to the gastro-hepatic omentum, were severed and tied, allowing easier manipulation. On aspiration a thick, muco-purulent fluid admixed with green bile was obtained. The gall-bladder was now opened and its mucosa found reddened and edematous with petechial hemorrhages throughout its interior. On palpation of the opened gall-bladder, the two soft calculi shown in the photograph were found. No calculi were palpable in the cystic or common ducts. It was deemed advisable to do a cholecystectomy rather than cholecystectomy for several reasons; first, because the child was acutely ill with diseased conditions in two different organs and the time of operation became a factor; secondly, the concomitant occurrence of inflammation in the appendix and gall-bladder suggested, not only a common etiology for both, but readily allowed of the presumption that the retro-peritoneal lymphatics and those along the biliary tract were involved and hence drainage of these, especially the latter via the gall-bladder, would be for the better interests of the patient.

BIBLIOGRAPHY

- Paterson-Wyllie: Amer. Jour. Dis. Child., Vol. 29, No. 4, Apr., 1935.
Still: Quotation *ibid.* above.
Ransohoff-Ochsner's Surgery. Surgery of Liver and Gall-Bladder.
Watson: Annals of Surgery, 1911, p. 103.

The Massachusetts Medical Society

THE CONTROL OF THE COMMUNICABLE DISEASES PREVALENT IN MASSACHUSETTS*

With a Study of the Mortality Due to Them During the Past
Seventy-Five Years

BY EDWARD G. HUBER, M.D.

(Continued from page 902)

CONTENTS

Chapter	Page
I INTRODUCTION	87
II HISTORY OF QUARANTINE	122
III HISTORY OF QUARANTINE IN MASSACHUSETTS	169
IV DEFINITIONS OF TERMS AND OF TOPIC	172
V GENERAL DISCUSSION OF CONTROL MEASURES	220
VI THE COMMUNICABLE DISEASES NOTIFIABLE IN MASSACHUSETTS	266
VII EDUCATION OF THE PUBLIC	933
VIII SANITARY CODE	934
IX A METHOD OF STUDYING MORBIDITY AND IMMUNITY	939
X SUMMARY	941

VII. EDUCATION OF THE PUBLIC

Full control of the communicable diseases seems all but hopeless, for in the final analysis very much depends on the co-operation of the general public. A disease like yellow fever can be exterminated, given authority and funds, for the problem is a special one which can be solved by health authorities who scarcely need even popular support of the campaign. But the great majority of the communicable diseases depend for their eradication largely on individual co-operation. It has been stated that

*Published by the Committee on Public Health of the Massachusetts Medical Society.

these diseases will never be controlled until all persons are immunized against them. Probably this is true, for even if a public were educated thoroughly in all they should know about how to avoid disease, and if they then applied all these principles, some unknown natural law would probably upset the scheme.

Not knowing this law or laws, and with the idea of doing all that is possible to control these diseases, the prime necessity now seems to be to gain the co-operation of the public. No further marked advance can be made without that help. By the public is meant not only the laity, but also the medical profession in general, not all of whom have theretofore given their full share of co-operation. The literature of the past few years contains much on the methods of presenting the necessary facts to the lay public in a forceful manner, but there is comparatively little on how to gain more help from the practitioner. The laws and regulations concerning the communicable diseases can never accomplish their purpose unless the public obeys them because they are reasonable and proper and not because the police power occasionally punishes a violator. The health officer who finds it unnecessary to use despotically the

enormous power bestowed upon him, but who maintains an "up to date" administration based upon the support of a public which he is enlightening, is the most successful one. Educational work is, then, a means to an end, and not the end itself. The value of this work is to be judged by its results in decreased morbidity from the communicable diseases. It is only a few years since educational work has become such an important part of the health officer's duties.

As Chapin insists, it is of the utmost importance to adhere strictly to the truth in health educational work. Inaccuracies and misstatements presented to the public are very detrimental to the cause, for ordinary advertising is so full of untruths or half-truths that once an incorrect statement is seen in health propaganda, confidence is lost in it. Medical men discuss among themselves much that is not firmly based on known facts, but nothing should be given the public except what is known to be true beyond any question or doubt. Unfortunately much of the matter now being given out is not strictly true. This statement applies particularly to the educational matter which is "turned out" by publicity men and newspaper men who often sacrifice veracity in order to make a more striking presentation of the idea they are trying to "sell." Education of that type probably does more harm than good.

Undoubtedly the most effective method of educating the public on health matters is through the schools,—primary, secondary, and college. The chief thing to teach is the prevention of disease and not mere platitudes about "an apple a day," etc. Simple hygiene is not enough; personal hygiene should be so strikingly taught in the primary schools that the child will develop habits of personal cleanliness such as keeping the hands from the mouth, and refraining from coughing and sneezing at others, will avoid crowding whenever possible, and will understand the rationality of isolating febrile cases as soon as ill. Essential information of this sort can be taught in such a way that it will not be forgotten, provided the teacher has received some training in what to teach. The voluntary agencies, which are always valuable in educational work can render particularly effective aid in this connection.

The public health nurse plays almost as important a rôle in health education as the schools. She not only spends most of her time in giving instructions, but she gives them at a time when they are most appreciated. Her work covers the entire range of preventive medicine.

The voluntary organizations have already been mentioned several times. Each such organization has its specific field, but the entire group is frequently able to do educational work of signal value by combining against some particularly active work of the "antis." Under

such circumstances educational propaganda have more force than when coming from the health department or even from a medical society.

Information may be gotten before the public in a variety of ways, by printed matter, posters, leaflets, public addresses, movies, the radio, regular health articles in the daily press, and cartoons. "Scare" headlines must be avoided. The objects of these articles and talks should be to spread information as to the prevention of disease, the manner of spread of the communicable diseases, the necessity of very early isolation, and personal cleanliness.

Practitioners of medicine may assist the great work in two ways,—by giving their patients personal advice on health matters, including advising active immunization, and by full co-operation with the health department. Ordinarily a physician feels he has done his duty to the state if he reports cases, even if he has no further interest in what is then done. Not all medical men understand the importance of public health work, nor do they all comprehend the administrative methods of a health department. If these matters could be brought to their attention effectively, there would be a growing appreciation of, and more co-operation with, the work of the health department. Medical societies should remain in active touch with health departments so that they may render immediate aid in the presence of an epidemic. Health departments should be represented on the programs at society meetings. Circulars, and articles in medical journals, on timely public health subjects will often attract the attention and interest of the practicing physician.

VIII. SUGGESTED BASIC SANITARY CODE

1. DEFINITIONS

In the following pages are given the fundamentals of a sanitary code for the control of the communicable diseases. An attempt has been made to recommend only such measures as are practicable at the present time. The control measures as previously described for each disease are in a few instances somewhat in advance of what can be carried out, but they have been given with a view to the future. The following suggestions partake more of the nature of minimum requirements. As the words quarantine and isolation are sometimes used ambiguously, their standard meanings have been adopted. Isolation refers to the limitations put upon the movements of the known sick person or on the carriers; quarantine refers to those put upon exposed persons.

2. REPORTABLE DISEASES

Those diseases now reportable in Massachusetts should continue so with a few exceptions:

- (a) Primary pneumonia should be substituted for lobar pneumonia. By primary pneumonia is meant all pneumonia which is not secondary to some other disease.
- (b) Acute infectious conjunctivitis should be substituted for suppurative conjunctivitis and ophthalmia neonatorum.
- (c) Botulism should be added.
- (d) Typhoid should be made a group to include the paratyphoids.

3. PERSON MAKING THE REPORT

- (a) Report should be made within six hours, preferably by telephone but also in writing, by the following: Physician, professional attendant, or person in charge of a hospital, dispensary, or institution.
- (b) If a physician or professional attendant has under his care a disease suspected of being communicable he should take precautions to prevent its spread; in addition, if the suspected disease is one of the following a report to that effect should be made to the health department:

Epidemic cerebrospinal meningitis	Scarlet fever
Diphtheria	Small pox
Encephalitis lethargica	Typhoid group
Acute infectious conjunctivitis	Whooping cough
Anterior poliomyelitis	Dysentery, bacillary

- (c) If no physician is employed, the parent, guardian, or householder, the keeper of a hotel, boarding house or lodging house, person in charge of a camp or dairy farm, the visiting nurse, public health nurse, school teacher, etc., makes the report if a communicable disease is suspected.

4. REPORTS OF LOCAL HEALTH OFFICERS

In addition to his routine reports the local health officer should telephone or telegraph to the state department of health when a case of state-wide importance occurs in his jurisdiction:

Anthrax	Plague
Asiatic cholera	Small pox
Glanders	Typhus
Leprosy	Yellow fever
Trichinosis	

and if one of the following diseases is at a dairy or in a person connected with a dairy which distributes milk outside his jurisdiction, similar report should be made:

Lethargic encephalitis	Typhoid group
Diphtheria	Scarlet fever
Dysentery, bacillary	Dysentery, amebic
Septic sore throat	Anterior poliomyelitis
Epidemic cerebrospinal meningitis	

5. DUTIES OF LOCAL HEALTH OFFICERS

- (a) Obtain epidemiological data and information as to contacts in every case of communicable disease.
- (b) Apply quarantine and isolation as prescribed in laws and regulations.
- (c) Make inspections to see that these laws and regulations are being complied with.
- (d) Instruct in concurrent disinfection.
- (e) When a disease is reported as presumably communicable:
 - (1) If the report was made by a physician, consult with him and determine the procedure.

- (2) If the report was made by anyone else, apply the laws and regulations to protect the public.

6. ISOLATION AND QUARANTINE FOR SPECIFIC DISEASES

(1) Anterior Poliomyelitis.

Isolation: In screened rooms, 14 days.
Quarantine: Attendant during illness, and contacts for 14 days after last exposure.

(2) Chicken Pox.

Isolation: Until scabs have disappeared.
Quarantine: None, if the diagnosis was confirmed by the health department; otherwise, exclusion of non-immune contacts from school, at the discretion of the health department.

(3) Diphtheria.

Isolation: Until there have been two negative nose and throat cultures 24 hours apart both obtained by the health department, or until the virulence test is negative.
Quarantine: Attendant during illness and until two negative cultures as in the case of the patient, and of contact carriers also until negative or avirulent.

(4) Epidemic Cerebrospinal Meningitis.

Isolation: Until there have been obtained by the health department two negative bacteriological examinations of the nasopharynx, 24 hours apart, or at earliest, one week after the subsidence of the fever.
Quarantine: Positive contacts until two successive negative nasopharyngeal cultures as above.

(5) German Measles.

Isolation: Restriction for seven days from onset.
Quarantine: None if the diagnosis was confirmed by the health department, otherwise owing to occasional confusion with scarlet fever, the case and contacts should be subject to the rules and regulations applicable to that disease.

(6) Influenza.

Isolation: During acute stage.
Quarantine: None.

(7) Pneumonia.

Isolation: During clinical course.
Quarantine: None.

(8) Encephalitis Lethargica.

Isolation: During acute stage.
Quarantine: None.

(9) Measles.

Isolation: Until five days after onset of rash, or until abnormal secretions cease.
Quarantine: Exposed non-immune children to be kept at home for 14 days after exposure, counting back to four days before the rash appeared.

(10) Mumps.

Isolation: Restriction until gland swelling has disappeared.
Quarantine: None ordinarily, but it is occasionally advisable, at the discretion of the health department to exclude non-immune contacts from school.

(11) *Acute Infectious Conjunctivitis.*

Isolation: Restriction until cured.
Quarantine: None.

(12) *Scarlet Fever.*

Isolation: Four weeks, or until all abnormal discharges have stopped and all sores have healed.
Quarantine: Attendant, and non-immune contacts (children, teachers, and food handlers) until seven days after last exposure.

(13) *Tuberculosis (Pulmonary).*

Isolation: Only when patient is refractory.
Quarantine: None.

(14) *Tuberculosis (Other Forms).*

Isolation: None.
Quarantine: None.

(15) *Typhoid Group.*

Isolation: In screened room until two negative bacteriological examinations of feces and urine at three-day intervals (successive) have been obtained; a negative bacteriological examination of duodenal contents would be particularly advantageous as an additional test.
Quarantine: None.

(16) *Whooping Cough.*

Isolation: For two weeks after the development of the whoop; thereafter patients may be allowed in parks and on highways, but not in places of assembly or in public conveyances, if accompanied by an adult, such restriction to remain effective until five days after the last whoop. (In some communities the use of arm bands may be practicable, but this must be left to the judgment of the health department.)
Quarantine: Non-immunes for 14 days after last exposure.

(17) *Dysentery (Amebic).*

Isolation: None.
Quarantine: None.

(18) *Dysentery (Bacillary).*

Isolation: During clinical course and until the organisms are absent from the feces.
Quarantine: None.

(19) *Malaria.*

Isolation: In screened room until the peripheral blood is free from parasites.
Quarantine: None.

(20) *Rabies.*

Isolation: During clinical course.
Quarantine: None.

(21) *Septic Sore Throat.*

Isolation: During clinical course.
Quarantine: None.

(22) *Small Pox.*

Isolation: In screened room until crusts and scabs are gone.
Quarantine: All contacts for 21 days after exposure unless successfully vaccinated within five days before exposure.

(23) *Tetanus.*

Isolation: None.
Quarantine: None.

(24) *Trachoma.*

Isolation: Exclusion from general school classes while and whenever there is visible secretion from conjunctivae.
Quarantine: None.

(25) *Actinomyces.*

Isolation: None.
Quarantine: None.

(26) *Anthrax.*

Isolation: Until lesions are healed.
Quarantine: None.

(27) *Asiatic Cholera.*

Isolation: In screened room during clinical course, and until the infectious organism is absent from the feces.
Quarantine: Contacts five days after last exposure, or until the causative organism is absent from the feces.

(28) *Glanders.*

Isolation: Until cured.
Quarantine: None (for human beings).

(29) *Hookworm Disease.*

Isolation: None.
Quarantine: None.

(30) *Leprosy.*

Isolation: For life, or until cured, in leprosarium.
Quarantine: According to leprosarium regulations.

(31) *Pellagra.*

Isolation: None.
Quarantine: None.

(32) *Plague (Bubonic, Septicemic, and Pneumonic).*

Isolation: Screened room free from vermin until cured. In the pneumonic form special precautions must be taken by the attendants to avoid droplet infection.
Quarantine: Contacts for seven days after last exposure.

(33) *Trichinosis.*

Isolation: None.
Quarantine: None.

(34) *Typhus.*

Isolation: In vermin-free room until 36 hours after normal temperature is reached.
Quarantine: Exposed susceptibles 12 days after exposure and delousing.

(35) *Yellow Fever.*

Isolation: In screened room, mosquitoes excluded, during first three days of the disease.
Quarantine: Those possibly also bitten by infected mosquitoes to be kept in screened rooms six days.

(36) *Gonorrhea.*

Isolation:
(a) Urethral: Exclusion from intercourse until cure.
(b) Conjunctival: Isolation until cured.
Quarantine: None.

(37) *Syphilis.*

Isolation: Exclusion from intercourse and, in the early stages, from food handling; if refractory, isolation in a detention hospital.
Quarantine: None.

7. METHODS OF ISOLATION AND QUARANTINE

The following regulations need not apply if the patient is under treatment in a satisfactory hospital:

- (a) In the following diseases the premises should be placarded and there should be isolation of the patient and quarantine of occupants:

Asiatic cholera	Typhus
Plague	Yellow fever
Small pox (quarantine of non-vaccinated contacts only)	
Leprosy	

- (b) In the following diseases the premises or apartment should be placarded, the patient isolated, and the attendant quarantined. If in the opinion of the health officer two or more rooms in a house are suitable for isolation they may be considered an apartment:

Diphtheria	Scarlet fever
Anthrax	Anterior poliomyelitis
Small pox (if all contacts had previously been successfully vaccinated)	

- (c) In the following diseases the room or apartment should be placarded and the patient isolated without quarantine of attendant; except that in whooping cough special regulations should apply after the first two weeks:

Chicken pox	Dysentery (bacillary)
Encephalitis lethargica	Influenza
Measles	Pneumonia
Septic sore throat	Typhoid group
Whooping cough	Glanders

Epidemic cerebrospinal meningitis

- (d) In the following diseases there need be no placarding, isolation, or quarantine; the movements of the patient should be restricted to the necessary extent within the home:

Infectious conjunctivitis	Rabies
Malaria	Trachoma
German measles	Trichinosis
Mumps	Actinomycosis

- (e) In the following diseases isolation or restriction is applied only where necessary, and then in accordance with law:

Gonorrhea	Syphilis
Tuberculosis (pulmonary)	

- (f) In the following diseases no isolation, quarantine, or restriction is needed:

Dysentery (amebic)	Hookworm disease
Tetanus	Pellagra
Tuberculosis (other forms)	

8. METHODS OF ISOLATION OF CONTACTS

Contacts with cases of the following diseases or with such of them as have been reported in accordance with Section 2 should be isolated or restricted in the same manner as is prescribed for those actually infected, for a period of time equivalent to the maximum period of incubation of the specific disease, except:

- (a) Known immune contacts.

- (b) Where laboratory examinations show that the infectious agent has disappeared before the expiration of the time.

Epidemic cerebrospinal meningitis (until two successive negative nasopharyngeal cultures 24 hours apart).

Diphtheria (until two successive negative cultures of nose and throat 24 hours apart, or the organism is shown to be avirulent).

Anterior poliomyelitis, 14 days.	Measles, 14 days.
Whooping cough, 14 days.	Scarlet fever, 7 days.
	Small pox, 21 days.

These measures are in addition to those covered in Section 7 (a).

9. METHODS OF ISOLATION OF CARRIERS

- (a) In the following diseases chronic carriers should be restricted as to occupation and kept under observation until several successive laboratory examinations show the absence of the infectious agent:

Asiatic cholera	Typhoid group
Dysentery (bacillary)	Dysentery (amebic)

- (b) In the following disease there should be isolation until two successive negative nose and throat cultures 24 hours apart have been obtained by the health department, or the organism is shown to be avirulent:

Diphtheria

- (c) In the following disease there should be isolation until two successive negative nasopharyngeal cultures 24 hours apart have been obtained by the health department, or until the end of the epidemic:

Epidemic cerebrospinal meningitis

10. ENFORCEMENT OF ISOLATION AND QUARANTINE

The health officer should have the necessary authority for forcible removal to a hospital, or for the employment of guards, if isolation or quarantine is not being properly carried out.

11. CONTAINERS FOR WATER AND MILK

If in any community the washing and sterilization of milk and water bottles is not being properly done as a routine measure at the distributing plants, the return of bottles from the premises of an infectious case should be prohibited.

12. FOOD HANDLERS

- (a) If a communicable disease originates on the premises where milk or other food is produced, kept, handled, or sold, the health officer must take whatever steps to control he deems necessary, for no general rules can be laid down.
- (b) Uninfected food handlers from infected premises must remain away from such premises while the disease is present, in the case of the following diseases besides those named in Section 7 (a):

Diphtheria	Typhoid group
Encephalitis lethargica	Dysentery (bacillary)
Septic sore throat	Scarlet fever
	Small pox

13. CONCURRENT DISINFECTION

The health department should have on hand printed instructions in the form of cards or

leaflets to be left at infected homes, these instructions to describe the necessary concurrent disinfection. All instructions should include advice to boil all the eating utensils used by the patient if this is not a routine procedure of the household.

- (a) In the following diseases the discharges from the nose and throat and articles soiled by those discharges must be disinfected. The best method is to receive the discharges on paper napkins, which are then placed in paper sacks fastened with adhesive to the side of the bed near the head. Sacks and contents should be burned at least daily:

Diphtheria	Pneumonia
Influenza	Mumps
Measles	Tuberculosis (pulmonary)
Scarlet fever	Rabies
Whooping cough	Plague (pneumonic)
Septic sore throat	
German measles	
Epidemic cerebrospinal meningitis	

- (b) In the following diseases the discharges from the nose, throat and bowels and articles soiled by those discharges must be disinfected:

Anterior poliomyelitis	Encephalitis lethargica
Glanders	

- (c) In the following diseases the discharges from the nose, throat and body lesions and articles soiled by those discharges must be disinfected:

Chicken pox	Small pox
Leprosy	

- (d) In the following diseases the feces and urine and articles soiled by them must be disinfected:

Typhoid group	Dysentery (bacillary)
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- (e) In the following disease the feces and vomitus and articles soiled by them must be disinfected:

Asiatic cholera

- (f) In the following diseases feces should be disinfected or disposed of in a sanitary way:

Hookworm disease	Trichinosis
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- (g) In the following diseases the discharges from the lesions and articles soiled thereby should be disinfected:

Tetanus	Actinomycosis
Anthrax	Plague (bubonic)
Gonorrhea	Syphilis
Tuberculosis (other forms)	

- (h) In the following diseases discharges from conjunctivae and nose, and articles soiled thereby must be disinfected:

Infectious conjunctivitis	Trachoma
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- (i) In the following diseases the insects indicated should be destroyed:

Yellow fever (mosquito)	Plague (fleas)
Malaria (mosquito)	Typhus (lice)

14. TERMINAL DISINFECTION

Terminal disinfection is not a substitute for concurrent disinfection. Fumigation with sulphur or hydrocyanic acid gas is suitable only

for killing insects. Soap and water, air and sunlight, boiling water and steam, or, in short, physical cleanliness, is ample for all except pulmonary tuberculosis, where renovation is thought to be necessary.

15. BREAKING QUARANTINE

In the following diseases when an infected person (and in some cases a contact) leaves the jurisdiction of a health officer without his consent, the latter must telegraph or telephone the facts to the state department of health. Courtesy demands that the health officer into whose territory the case has gone be notified at the same time.

Anthrax	Asiatic cholera
Diphtheria	Glanders
Leprosy	Plague
Scarlet fever	Small pox
Anterior poliomyelitis	Typhoid group
Typhus	Yellow fever
Epidemic cerebrospinal meningitis	

16. CONTROL OF PULMONARY TUBERCULOSIS

If a physician or head of a hospital reports a case and agrees to assume responsibility for the proper instruction of the patient as to how to protect others, the health department need take no further steps. Routine monthly reports on some specified day should be made as to whether such patients are still under observation. If no such report is received, or if the physician refuses to take responsibility, it becomes the duty of the health department to take the measures, even to isolation (forceible) in a suitable hospital.

17. CONTROL OF THE VENEREAL DISEASES

The first report of a venereal disease should be made by office number, the physician, hospital or clinic head giving out the necessary printed instructions. Routine monthly reports, on a specified day should be made, also by office number, as to whether the patient is still under treatment or has been discharged cured. If no report is received, it is the duty of the health department to investigate. If the patient has neglected or discontinued treatment, or refuses to follow instructions, the case should be reported by name and address to the health department. Such cases found by the health department should be ordered to take treatment at a physician or a clinic. If the patient refuses he should be forcibly removed to an isolation hospital.

18. LABORATORY EXAMINATIONS

When the control or release of a case, contact, or carrier of a communicable disease depends on laboratory findings, the health officer should require such a report. If there is no available state laboratory (or municipal one), the findings of an approved private laboratory may be

accepted. But the specimens should be obtained by health department personnel.

19. PUBLIC FUNERALS

Public funerals need not ordinarily be prohibited if contact carriers are excluded, for they and not the corpse convey the disease. It is fairly well known where the foci of infection are by the time death occurs, and all of them are probably under restriction. Funerals elsewhere than at the house where the death occurred will be preferred, and should be encouraged, because some few persons would not enter the house but might the church.

20. CONTROL MEASURES IN SCHOOLS

- (a) Any child with catarrhal symptoms, fever, marked lassitude, sore throat, skin eruption, cough, cold, sore eyes or any other indication of a communicable disease should immediately either be segregated by the teacher until an examination by the school physician or health department can be made, or should be sent home and the health department notified. The examination by the teacher need not be a formal one, and must not be a diagnostic one. An observing teacher with only a slight training can detect such symptoms as those named above during regular school work, and can thus remove foci of infection very early. A teacher should also report to the health department any child who returns to school after an absence for some unknown cause.
- (b) No child ill with a communicable disease shall be allowed to attend school from the time the first symptoms of the disease occur until given a permit by the health department to return.
- (c) Section 8, defining methods of isolation of contacts, is applicable to schools. No other contacts need be restricted.
- (d) Schools should very rarely be closed because of prevalence of communicable disease except in rural districts. Aside from the fact that closing city schools does no good, it closes one avenue of search for carriers.

IX. A METHOD OF STUDYING MORBIDITY AND IMMUNITY

The following method of studying morbidity and immunity is applicable to any disease for which the necessary statistical data are available. Unfortunately such statistics are rarely found but the method is presented with a view to discussion and for future application, when statistical research and other factors will have stimulated better reporting.

In such a problem there are many variables and therefore no attempt at precision of figures will be made. The method will however be treated with sufficient accuracy for general conclusions to be drawn. The disease to be studied is typhoid fever. The data which form the basis for the computations were obtained from 5421 histories of typhoid cases which are on file in the Department of Health of Massachusetts. These histories were obtained during the eight years 1917-1924. They are not all

that could be desired either in quantity or in quality, but there are probably no better data to be obtained anywhere. Roughly, the histories were classified as good, and poor; there were 4346 of the former and 1075 of the latter.

Table 18 shows the age distribution of the 7284 cases which were reported during the eight years 1917-1924. This number included 1863 cases for which no histories were obtained. Case fatality was computed for each age group, based on these figures and on the mortality figures for typhoid in the annual reports on the vital statistics of Massachusetts.

One of the questions on the history blank was concerning any previous attack of typhoid fever. With full realization of the possibility of the inaccuracy of these statements as well as of the possibility of diagnostic errors such as mistaking paratyphoid for typhoid, the following figures are presented as to the "repeat" cases of typhoid during 1917-1924.

TABLE 19
AGE DISTRIBUTION OF INDIVIDUALS HAVING SECOND
ATTACK OF TYPHOID

Age group	Repeats
0-9	2
10-19	4
20-29	16
30-39	15
40-49	13
50-59	17
60-69	5
70-79	1
Unknown	4
Total	77

Everyone now alive has had a certain chance of becoming infected with typhoid at some time during his life. The older the person, the greater this chance both because of the greater duration of time and because the typhoid rate has declined rapidly in the past half century. It is possible to compute this probability for each age group by going back one, two, three, or more decades, obtaining the chance of having had typhoid in each successive previous ten-year period. The sum of all these chances for each respective age group represents then the probability of a member of each respective group having had typhoid and of having survived. This method assumes that an attack of the disease neither confers immunity nor has sequelae which predispose the recovered individual to fatal diseases. It assumes that the recovered case has as good a chance to live as the general population. The crude death rate applies to the recovered typhoid case just as to those escaping infection, and is therefore not taken into consideration. Take for example the present age group 40-49, the mean age of which is now (1925) 45. Ten years ago the mean age

of this group was 35; twenty years ago, 25; thirty years ago, 15; and forty years ago, 5. Forty years ago, in 1885, the specific age mortality rate for typhoid fever for age group 0-9 was 23.6 per 100M. As the computations are on a ten-year basis, the sum of these rates from 1880 to 1889 is taken, which is 248.7 per 100M (per decade). For age group 0-9 the case fatality (table 18) has been 5.5% for the past eight years. Assuming that this was true forty years ago, the morbidity rate per 100M per decade for this age was 248.7/.055, or 4520. Of those infected 94.5% survived, making a survival rate of 4271. Expressed as a decimal, the probability that those now living whose mean age is 45 had typhoid when their mean age was 5, is .0427. Take this same age group ten years later. The sum of the specific age mortality rates for the decade was 348.3. The case fatality rate was 8.4%, and the morbidity rate was therefore 348.3/.084 or 4148. The survival rate was 4148 x .916 or 3800 per 100M, or .038. A decade later the rate was .019; ten years ago it was .0042. In order to carry out the method for those now at mean age 45, it is necessary to extrapolate the mortality rate to 1929. Inasmuch as the decade is half over, the survival rate must be halved, and the resulting figure, representing the chance for a person in age group 40-49 having survived an attack of typhoid incurred in this decade is .0004. Now, adding these rates (.0427, .038, .019, .0042, and .0004) we find that the probability that those in age group 40-49 have had typhoid and recovered at some time during life is .1043. During

General conclusions only, may be drawn. Immigration and emigration have not been taken into consideration, and the former has been particularly important in the past. The question of carriers which may have a bearing is also omitted, for obvious reasons. However, for the purpose of discussion it may be stated that the results seem to indicate that an attack of typhoid confers an immunization which is wide-spread, but with no definite period of duration, and which may break down after any period of time under conditions favorable for the causative organism. According to table 20, the older the age group, the greater the evidence of immunity. The very high figure for age group 0-9, however, would seem to indicate diagnostic inaccuracies. That there should be two repeat cases at the mean age of five, among 890 cases in that age group seems almost impossible. With regard to these younger age groups, one other factor should be taken into consideration. The repeat cases occurred during the period 1917-1924 during the earlier part of which interval the typhoid rate was higher than it has been since 1920. The rate of decline of typhoid morbidity was more rapid after 1910 than it had ever been before. The rate for the present decade was based on the 1920-1923 rates, which were extrapolated to 1929 on semi-logarithmic paper. Such a rate would then manifestly be lower than the actual rate which existed from 1917 to 1919. This difference has no significance, relatively, for the older ages, but for the younger groups, and particularly for group 0-9 where it represents the total survival probability, the error may be large enough to make the ratio between the actual and expected cases more nearly comparable to that for older ages.

It is not at all certain that the diagnosis between typhoid and the paratyphoids has always been carefully made. Some of the repeat cases may possibly have been instances of one of these infections at one time and the other at another. There is no way of estimating the relative prevalence of these diseases. Assuming that typhoid predominates, let p represent the probability of a disease diagnosed as typhoid being typhoid, and q of its being the commoner of the paratyphoids (taking only one, for the sake of simplicity). Then $p+q$ is the probability that the disease called typhoid is either typhoid or paratyphoid, or that they are combined. The probability of a person having had typhoid and then contracting paratyphoid is pq . Similarly, the probability of a person having had paratyphoid and then contracting typhoid is qp . The sum of these probabilities is $2pq$. Assuming that attacks of typhoid and paratyphoid confer complete immunity to their respective organisms, $2pq$ represents the entire probability of repeats in the group, that is that the apparent repeat is really a case of one disease at one time and the other at another. Then

TABLE 20
EXPECTED AND ACTUAL REPEAT CASES OF TYPHOID

Present mean age	Survival chance	Cases studied	Expect- ed re- peats	Actual re- peats	Per- cent- age (5)/(4)
(1)	(2)	(3)	(4)	(5)	(6)
5	.00047	890	0.41	2	488%
15	.00602	1,488	9	4	44
25	.02004	1,298	26	16	61
35	.04784	881	42	15	36
45	.10430	513	54	13	24
55	.20262	285	58	17	29
65	.27692	105	29	6	21

the eight years 1917-1924 there were 684 cases in age group 40-49. About three fourths of the total cases were recorded on the history blanks, and assuming a similar age distribution for those for whom there were no histories, there were 513 cases in this age group whose typhoid history was somewhat a matter of record. Of these, 10.43% or 54 should be repeats, given no immunity. There actually were 13, slightly more than 25% of the expected number. The following table shows similarly calculated figures for the other age groups.

2pq times the number of cases of repeats in each age group would give the actual number of expected repeats. Let r represent the repeats:

TABLE 21

RELATIVE PREVALENCE OF TYPHOID AND PARATYPHOID
IF EACH CONFERS COMPLETE IMMUNITY

$$2pq = \frac{r_{\text{observed}}}{r_{\text{expected}}} = r_{\text{observed}}$$

Age group	2pq	p (typhoid)	q (paratyphoid)
0-9	4.88		
10-19	.44	.68	.32
20-29	.61		
30-39	.36	.77	.23
40-49	.24	.86	.14
50-59	.29	.82	.18
Over 60	.21	.88	.12

This method gives results as shown in table 21. In age groups 0-9 and 20-29 it would seem that there has either been incorrect diagnosis, or that both forms of paratyphoid have entered into the question or that immunity was not perfect as was assumed. Columns 3 and 4, showing values for p and q for each age group give the necessary relative prevalence of typhoid and paratyphoid respectively, if each disease confers complete immunity. There is striking similarity in the results for ages over 30, and that for age 10-19 is not hopelessly bad. This method takes no account of differences in mortality, nor of the fact that of the 5421 cases studied, about a fifth were classed as poor histories, and repeats may not have been noted.

If now, from table 20 we take the total number of expected repeats (218) and the total number of actual repeats, including the four of unknown age (77), we find that since $2pq$ is $77/218$, p is .77 and q , .23. Therefore if we assume that there is one case of paratyphoid for every three cases of typhoid the figures show that each disease confers a complete immunity. This distribution does not seem to be an unreasonable one so far as morbidity is concerned. Paratyphoid B is probably the cause of the great majority of the paratyphoid fevers and although its mortality is probably not so great as that of typhoid itself, yet there is no reason for believing a different age distribution of cases.

Furthermore the immunity shown does not appear to be for any particular period. On the other hand there is every indication that if a repeat is to occur, it will be very soon. In fact, 23 of the repeats occurred from 0 to 9 years after the first attack, and 24 from 10 to 19 years. This is also shown in table 20 in the increasing ratio of actual to expected repeats, with de-

creasing age. This might indicate a special predisposition on the part of a very few, and during early life, to diseases of this group; or in insanitary mode of life with repeated exposures to such diseases on the part of those in whom the repeats occurred.

X. SUMMARY

The purpose of this study has been to present as concisely as possible the most approved and effective present day procedures against the communicable diseases which are notifiable in Massachusetts. The various control methods in vogue among the local boards of health conflict with each other, often to a marked extent, to the disadvantage of the cause of public health administration. Much has been said in the preceding pages concerning the duties of practicing physicians relative to aiding in the campaign against communicable diseases but administrative methods have received most emphasis and are consolidated in a compendious form in the sanitary code in chapter VIII. Neither the historical nor the statistical portion of the study bear any direct relation to the main purpose of the work. The former was included in order to furnish a background which would be of interest and to show the evolution of control measures; the latter because no complete analyses of the Massachusetts mortality statistics have ever been made before and it was thought that such analyses might not only be of interest but possibly of some significance also.

The control methods proposed were decided upon after studying the literature and the procedures in the various states and municipalities. Many measures are agreed upon by various authorities in principle but administrative details differ unnecessarily. These were not difficult to standardize. Other methods commonly used are too drastic as compared with the benefits derived from them, and in such cases reductions in requirements have been proposed. In some few instances diseases of which nothing is known but which are universally thought to be contagious have been assigned definite control measures based on suspicion only. Until research uncovers more facts concerning such diseases no advance, or really start, in control can be made.

The statistical data recorded are based on the mortality figures given in the annual reports on vital statistics of the Secretary of the Commonwealth and on the federal censuses of 1840-1920. The arithmetic method was used for estimating the population as of July 1 during intercensal and postcensal years, both for the total population and for the subdivisions by age and sex. All computations were done on a twenty inch slide rule and the computing errors are believed to be less than those of the census. Practically all the mortality rates thus derived

are shown graphically on semi-logarithmic paper, since the rate of decline or of increase is of more importance than the actual rates themselves.

The results of the study are not so satisfactory as it was hoped they would be. The subject is altogether too broad and general to be handled within comparatively narrow limits, but nevertheless a sanitary code is suggested, based on the data in chapter VI, which, it is believed, embodies the most reasonable and effective measures seen in the light of present knowledge. The graphs present the mortality statistics of Massachusetts from points of view not previously worked out; many of them are interesting, if not illuminating.

The method of studying immunity which was described in chapter IX and which was suggested by Prof. Edwin B. Wilson, has no direct bearing on any control measures, but it demonstrates a way in which statistics could be used if they were available. The method was applied to typhoid fever, and a few general conclusions were drawn.

BIBLIOGRAPHY

- Avery, Chickering, Cole and Dochez: Monograph Number 7, Rockefeller Institute for Medical Research.
- Aycock and Eaton: Am. Jn. Hyg., 4:366.
- Babes: Die Lepra, Nothnagel's Specimen Pathologie u Therapie, Vol. 24, p. 58.
- Blake and Cecil: Jn. Exp. Med., 21:492, 499.
- Blasngame: Jn. Soc. Hyg., 9:342.
- Bloomfield: Bull. Johns Hopkins Hosp., 22:21; Prog. Med., 1924, 1:120.
- Blumer: Jn. Am. Med. Assn., 82:362.
- Boeck and Stiles: Hyg. Lab. Bull. No. 123.
- Brooks: Med. Clin. of N. Am., 1918, 2:492.
- Brown: Am. Rev. Tub., 7:216.
- Buffum: Boston Med. and Surg. Jn., 191:249.
- Bushnell: Epidemiology of Tuberculosis. New York, 1920, William Wood & Co.
- Caldwell, Charles: Thoughts on Quarantine and Other Sanitary Systems. Boylston Prize Essay, 1824, Boston, 1824.
- Cecil: Am. Jn. Med. Sci., 164:58.
- Chapin: Jn. Infect. Dis., 12:171; Sources and Modes of Infection, New York, 1916, Wiley.
- Clark: Pub. Health Rep., 33:283.
- Clifford: Boston Med. and Surg. Jn., 188:59.
- Colin, Leon: Quarantaines. Extrait du Dictionnaire Encyclopédique des Sciences Médicales, Paris, 1872.
- Committee Report of Committee on Nomenclature. Jn. Bact., 2:124.
- Crothers: Arch. of Pediat., 41:262.
- Crum: Am. Jn. Pub. Health, 4:299; 5:991.
- Debré: Bull. de l'Acad. de Méd., Paris, 89:321.
- Dobell, Gittings, Jepps, and Stephens: Med. Research Cym., London, Special Report Series, No. 16.
- Dobell and O'Connor: Intestinal Protozoa of Man.
- Dout and Sandidge: Pub. Health Rep., 29:283.
- Dublin: Transactions of Ntl. Tub. Assn., 1923, p. 317.
- Eager: Early History of Quarantine. Yellow Fever Inst. Bull. No. 12, Washington, 1902.
- Emeraon: Am. Rev. Tub., 6:282.
- Evans: Pub. Health Rep., 28:825.
- Foster: Jn. Infect. Dis., 21:451.
- Funk: Jn. Soc. Hyg., 9:150.
- Garbat: Monograph No. 16, Rockefeller Inst. for Med. Research.
- Garrison: History of Medicine, Saunders, 1917; Notes on the History of Military Medicine, Mil. Surg., 1921, 1922.
- Gay: Typhoid Fever. Macmillan Co., 1918.
- Hamilton: Jn. Am. Med. Assn., 40:576.
- Handbook of General Orders, Instructions, and Rules for Medical Inspectors in the Medical Division, Health Dept., City of Boston, 1925.
- Hess and Unger: Am. Jn. Dis. Children, 6:24.
- Hill: The New Public Health. The Macmillan Co., 1916.
- Hitchens: Am. Jn. Pub. Health, —:855.
- Hodges: Bull. J. H. Hosp., 34:344.
- Houghtaling: Ohio State Med. Jn., 20:514.
- Howard, John: An Account of the Principal Lazarettos in Europe, London, 1789.
- Jewell: Historical Sketches of Quarantine. Address delivered before the Phila. County Med. Soc., Jan. 28, 1887.
- Kelley and Pfeiffer: Jn. Am. Med. Assn., 82:913.
- Koch: Die Bekämpfung des Typhus, Veröffentlichungen a. D. Militärsanitätswesen, 1902 H 21.
- Lawrence: Jn. Soc. Hyg., 9:272.
- McMullen: Pub. Health Rep., 32:2463.
- Minimum Rules for the Control of Communicable Diseases, Mass. Dept. of Pub. Health, 1922.
- Minnesota State Health Laws and Regulations, 1921.
- Miller: Am. Jn. Pub. Health, 11:913.
- Mitchener: Jn. Soc. Hyg., 9:288.
- Mudd, Grant and Goldman: Jn. Lab. and Clin. Med., Jan. to Mar., 1921.
- Mumford: A Narrative of Medicine in America. The Lippincott Co., Philadelphia, 1902.
- Nelson's Loose Leaf Medicine. Thomas Nelson & Co., 1920.
- Neurath: Med. Klinik, 17:39.
- Nichols: Carriers in Infectious Diseases, Baltimore, 1922.
- Otto: Boston Med. and Surg. Jn., 191:55.
- Osler: Practice of Medicine, 8th edition. D. Appleton Co., 1912.
- Packard: The History of Medicine in the U. S. The Lippincott Co., Philadelphia, 1901.
- Park: Public Health and Hygiene. Lea & Febiger, 1920.
- Peabody: Historical Study of Legislation Regarding Public Health. Chicago, 1909.
- Phillips: Am. Jn. Med. Sci., 161:163.
- Prevention and Control of Communicable Disease in the State of Wisconsin. Wisconsin State Board of Health, 1922.
- Radin: Arch. of Int. Med., 22:354.
- Records of the Colony of Massachusetts Bay in New England.
- Report of Committee on Municipal Health Department Practice of the Am. Pub. Health Assn. Pub. Health Bull. No. 136.
- Report of the Massachusetts Sanitary Commission, 1850.
- Rosenau: Preventive Medicine and Hygiene. D. Appleton & Co.
- Royce: Jn. Soc. Hyg., 9:77.
- Rules and Regulations Governing Control of Contagious Diseases, Rhode Island State Board of Health, 1922.
- Sacquépée: Bull. Inst. Past., 1910, 8:1, 49.
- Salthé and Krumwiede: Am. Jn. Hyg., 1924, IV, No. 1.
- Sanford: Jn. Am. Med. Assn., 81:659.
- Sanford and Magrath: Minn. Med., 5:71.
- Sajet and Van Gelderen: Nederlandsch Tijdschr. v. Geneesk., 2:1525.
- Sanitary Code of the State of Connecticut, 1923.
- Sanitary Code of the Board of Health of the Department of Health of the City of New York, 1922.
- Schneider: Am. Jn. Pub. Health, Jan., 1916.
- Schwenkenbecher: Med. Klinik, 17:1447.
- Sedgwick: Reports to Mass. State Board of Health, 1892.
- Sharpley: Am. Jn. Pub. Health, 13:222.
- Sinclair: Mil. Surg., 50:426.
- Stillman: Jn. Exp. Med., 26:512.
- Talbot: Med. Clin. of N. Am., 3:127.
- Tandy: Am. Jn. Pub. Health, 13:262.
- Tice: Practice of Medicine. W. F. Prior Co., New York, 1920.
- Tobey: Jn. Am. Med. Assn., 83:462.
- Tomanek and Wilson: Proc. of Ntl. Acad. of Sciences, 10:161.
- Tuohy: Minn. Med., 7:555.
- Vaughan, V. C.: Epidemiology and Public Health. C. V. Mosby Co., 1922.
- Vaughan, T. S.: Am. Jn. Hyg. Monograph Series, No. 1, July, 1921.
- Walker: Phil. Jn. Sci., 6:259.
- Webster, Noah: History of Epidemic and Pestilential Diseases, Hartford, 1799.
- Well: Médecine, Paris, Vol. 2, No. 11.
- Whipple: Vital Statistics, Wiley, New York, 1923; Typhoid Fever, New York, 1908.
- Williams: Jn. Am. Med. Assn., 80:532.
- Williams: N. Y. State Jn. of Med., 16:422.
- Wilson: Med. Clin. of N. Am., 7:152.
- Woodworth: Quarantine (Extracted from Transactions of International Med. Congress, Phila., Sept., 1876).
- Zinger: Jn. Am. Med. Assn., 82:1150.
- Zinsner: Medicine, 1:312; Jn. Indust. Hyg., Mar., 1920.
- Acts Relating to the Establishment of Quarantine in Massachusetts from Settlement of Colony of Mass. Bay to the Present Time. Rockwell & Churchill, Boston, 1851.

TABLES

Table	Page
19 Age distribution of individuals having second attack of typhoid fever.....	939
20 Expected and actual repeat cases of typhoid	940
21 Relative prevalence of typhoid and paratyphoid if each confers complete immunity	941

MEDICAL PROGRESS

PROGRESS IN DERMATOLOGY

BY HARVEY P. TOWLE, M.D., BOSTON

DERMATOLOGIC literature has been both abundant and varied during the past year. As is usual in all medical literature the bulk of it deals with the diagnosis and, to a lesser degree, with clinical signs. It is most interesting and pleasing to note, however, that more attention is being paid to the cure, to the therapeutics of skin disease.

THERAPEUTICS

It is a commonplace to say that every workman should be familiar with the tools of his trade. Dr. Fantus, among his articles on The Technic of Medication, devotes one to a description of several dermatologic tools (*J. A. M. A.* 86:6, 415, 1925). As he says "they present features which make acquaintance with them desirable".

Concerning *diadermic administration*, he says it is not a quick or direct way of getting medications into the circulation but "it secures an evenness and constancy of medication that no other route supplies". The main objection is the uncertainty of dosage. The method is useful when action on the alimentary canal is to be avoided or when it is necessary to utilize all possible routes of entry. The objection to the alleged dirtiness of mercurial inunction he disposes of by pointing out that after preliminary proper massage the mercurial salve remaining on the surface can be removed with gasoline without in any wise diminishing the therapeutic efficiency of the method.

Among the *salves* he picks out for mention the ointment of lead oleate, known as diachylon ointment. This, he says, is a rather tenacious ointment of eminently soothing qualities which is useful in acute dermatitis and to soften crusts.

In view of the feeling successfully planted in the female mind by the beauty parlors and the manufacturers that soap and water should never be used on the skin but should be supplanted by their own commercial products what Dr. Fantus has to say about cold cream and vanishing creams is of present value.

Cold cream is compounded of about 20% of stronger rose water incorporated in a mixture of expressed oil of almonds, white wax, spermaceti and 0.5 of borax. On exoriated and irritated surfaces it is cooling and soothing. Because the official cold cream has some tendency toward rancidity, the various commercial cold creams differ in that they contain chiefly white vaseline and liquid petrolatum and wax. The substitu-

tions lessen the soothing and cooling properties.

Fantus sounds a note of warning against the so-called vanishing or "greaseless cold creams". Strictly speaking they are not cold creams at all but soaps obtained by a reaction between stearic acid and an alkali. They cleanse better than the greasy cold cream but they run the risk of setting up an irritation because they are soaps (for whose use they are advertised to be a substitute).

Pastes are described at some length. It is not possible to reproduce here all Fantus has to say. In general, it may be said that a paste is made up of an ointment base to which is added from 40 to 60% powder. Its basic action is to protect. It can be made soothing or stimulating by the incorporation of the appropriate drugs. Fantus gives directions for the making of a variety, such as Lassar's zinc paste, an absorptive starch paste, a drying paste, a lubricating jelly and a variety of poultices. The whole is well worth reading and its principles well worth learning.

The French are apparently giving considerable attention to the treatment of *chancreoid ulcers* by means of vaccines both by external application and by injection.

Hababon-Sala isolates cultures of the streptobacillus of Ducrey from the washed lesion. From these suspensions are made, filtered and sterilized. The preparation is then applied daily as a moist dressing with the reported result of rapid healing without untoward reaction and without other treatment (*Bull. Soc. Franc. de Dermat. et Syph.*, 32:R. S. 96, 1925).

Jaussion and Diot report (*Ibid.*, 32:152) that they have treated chancreoids with dressings saturated with a stock vaccine made from the organisms most commonly associated with the Ducrey bacillus but with the Ducrey bacillus itself omitted from the vaccine. Like Hababon-Sala, they too report rapid cures.

Dubreuilh and Broustet report (*Ibid.*, 32:182) satisfactory results obtained by Nicolle's vaccine administered by injection at intervals of from four to seven days. Severe febrile reactions occurred. Usually two or three injections sufficed to produce a cure.

Laderich and Weill-Spire also report on the effect of the Nicolle vaccine (*Ibid.*, 49 p. 1581, Dec., 1925). They gave the vaccine by the intravenous route, three doses of 1 c.c. each. Recovery occurred within seven days.

Mercurochrome-220 Soluble continues to be lauded by its believers. Young, Hill and Denny in an article on Mercurochrome in the Treatment of Infectious Diseases of the Skin (*Archiv.*

of *Derm. and Syph.*, 1926) report remarkable results in erysipelas, furuncles and carbuncles, chancreoid ulcerations, cellulitis and abscesses, gas gangrene, diabetic gangrene, pemphigus, psoriasis, eczema (temporarily improved), syphilis (with exterior skin lesions) and leprosy. It is hard to believe that any one remedy can affect favorably so many diverse and unrelated diseases. It would seem desirable to have these claims tested by other competent observers.

Eldredge reports cases of *erysipelas* treated externally by a 5% solution of mercurochrome (*Ann. Clin. Med.*, 4:333, 1925). He swabbed the affected area once a day. In only one case was there any tendency to spread after the first application and in that case a second application was all that was needed to succeed.

The reports of the good effects of *non-specific protein therapy* (milk) in various infections continue to appear. Recently Weirauk has written (*Ohio State Med. J.*, 22:305, 1925) that he considers milk injections the treatment of choice for carbuncles. The favorable effect, he says, usually manifests itself promptly. If there is no improvement after two or, at the most, four days then the lesion should be treated surgically. Weirauk says that both furuncles and syphilis are also favorably affected. In the latter the skin lesions show marked improvement or even complete regression. He has had good results even in old syphilis where the physical condition has been lowered by over-treatment.

New Englanders are, of necessity, interested in all that pertains to the treatment and prevention of *Ivy Poisoning*. Consequently they will be interested in the investigations of Krause and Weidman of the question of immunity and of the Strickler-Schamberg method of desensitization (*J. A. M. A.*, 84:1906, 1925).

They studied twenty volunteers over a period of eighteen months. To determine their degree of susceptibility they tested the skin by means of the application of the poison ivy plant and its extract. They found that the degree of susceptibility varied in the non-immune; that repeated attacks of poisoning tended to shorten all stages of subsequent attacks; that the disease was *not spread* by the secretions from the lesions; and that in about one-half of the susceptibles it was necessary to damage the skin first before an attack could be provoked.

Seven of the volunteers were given the preventative treatment of Strickler. It failed to develop protection as was proved by the application of the virus to the skins of those so treated.

Markey has published a method of treating *Plantar Warts* which, while successful in his hands, possesses certain obvious disadvantages and the not too remote possibility of failure in other hands.

He uses fuming nitric acid or a strong solu-

tion of caustic potash. His method is as follows: First, the region about the wart is cleansed with green soap. Then a layer of colodion is applied about to protect it from the caustics. Next the wart is bored with the caustic to such a depth that the patient experiences pain. Here the process is stopped and the caustic neutralized. The hole is then filled with a 15 to 20% ointment of salicylic acid. Finally a wide pad of felt with a half inch hole is strapped on over the site. The dressing is removed every day the loosened skin and detritus scraped away and the pad replaced. Cure is accomplished in about a week but unless the treatment has been pushed until the last vestige of the wart has been destroyed there will be a recurrence.

DRUG ERUPTIONS

The question of drug poisoning is closely allied to the topic of treatment. In the treatment of a given case we have always to watch for and to recognize in the skin the symptoms of intolerance. Therefore the reports of eruptions caused by commonly used drugs have importance, especially as many are supposed to be non-toxic.

For example, even *Insulin* will sometimes cause an eruption as is shown by Leuboullet, Lelong and Frossard (*Bull. et Mem. Soc. Med. de Hôp., Paris*, July, 1924). They observed in a diabetic child, 4½ years old, urticaria and different forms of edematous eruptions following injections of insulin, which were of such intensity as to compel the insulin treatment to be abandoned. It is reported that the clinical picture resembled that of serum sickness or the desquamative generalized erythroderma seen after arsphenamin.

From time to time reports have been published of eruptions caused by *Phenolphthalein*. Recently, Dr. Fred Wise of New York exhibited a patient with such an eruption to the New York Dermatological Society (*Arch. of Derm. and Syph.*, 12:4, p. 585). The eruption has been present for nine years during which time the skin had never been entirely free.

The eruption consisted of bright red, erythematous plaques with moderate scaling, situated on the inner aspects of both extremities, on the chest, the abdomen, the anterior surfaces of the thighs, the buttocks and over the sacrum. There were a few vesicular lesions on the hands. The plaques were characterized by a peculiar mottling like lacework with marbling in the center. The ingestion of phenolphthalein always caused a flare-up of the eruption.

Weber reports a case of *luminal* rash (*But. J. Child. Dis.*, 22:280, 1925). A girl was given one gram every day for fourteen days when her skin broke out with a measles like rash which covered her almost from head to foot. The head

regions were particularly affected. In addition there were numerous bullae whose contents were a deep ochre yellow. The sclerotics were not deeply jaundiced. The serum from the bullae gave a strong reaction to van der Bergh's test for bilirubin.

Goeckermann has already reported two cases of permanent pigmentation of the skin due to face powders. He now reports eleven more (*J. A. M. A.*, 84:506, 1925).

RADIUM AND X-RAY

McHutchinson and Brown have been working on a new development in radium therapy (*Lancet*, Lond., 1:755, 1926), namely, on the application of the later disintegration products of radium in the treatment of certain skin conditions. The elements, radium D and radium E, have been extracted from radium emanation tubes and in equilibrium together have been prepared for medical use in the form of applicators. With these they obtain favorable results in lupus erythematosus and in various forms of nevi. Radium D and E are unique in that their radiations are absorbed by the skin under treatment. Their effective penetration is very slight, about 3 mm. of tissue. The applicators retain their strength for a long time. In sixteen years they lost only one-half their original strength.

That there are unrecognized dangers in the use and handling of *radioactive substances* is evidenced by Martland, Conlon and Knaf's report of three fatal cases (*J. A. M. A.*, 85:1769, 1925). The report is unique in that these cases are probably the first ever to have had electrometer tests both before and after death. All were positive for radioactive emanations.

The reporters conclude from their observations that radium introduced into the body in minute quantities is deposited in the reticulo-endothelial system whence it continually bombards the hematopoietic centers, finally destroying them. The end result is pernicious anemia.

They warn against the therapeutic use of radioactive elements if they are employed in such a way that they may be deposited in the body and remain indefinitely.

This warning is reinforced by the experience of Hoffman (*J. A. M. A.*, Sept. 26, 1926) who has seen four cases of necrosis of the jaw in workers in a luminous watch dial plant. A paint, containing a minute quantity of radium or mesothorium, is used to make the dials luminous. In the cases reported the workers were in the habit of moistening the tips of the brushes with their lips to make the brush point finer. Each time they conveyed a small amount of the paint to their mouths. After months or years of exposure anemia and necrosis of the jaw developed.

As with radium so with the x-ray danger

exists, though better recognized. Dubreuilh and David (*Ann. de Derm. et Syph.*, Mar., 1925) report two cases of x-ray ulcers. In the one case a basal cell epithelioma was treated by the Roentgen ray several times between 1913 and 1920. In 1922 an ulcer developed in the atrophic skin. In the second case, an uterine fibroma had been irradiated through the skin nine years before. An ulcer developed in the atrophic, telangiectatic skin.

Freund (*Wien. klin. Wchnsch.*, 39:349, 1926) emphasizes his belief that, in using the x-ray in the treatment of diseases of the skin, it is necessary to protect the deep tissues as well as the surroundings. It is not only unnecessary, but it is injurious, to use hard rays on superficial skin diseases, such as eczema, psoriasis or for depilation. He uses filters (0.5 to 3 mm. aluminum) only for depilation and for processes under the skin. The rays should be about 7-8 We hard. The results were better, in deep seated processes, when other measures were used in combination with irradiation, as for example, in lupus, excision combined with irradiation of the open wound. He is favorably impressed by the results obtained by means of x-ray therapy in favus and in other long standing affections.

Gourin has used the x-ray in the treatment of *lichen planus*, a new method (*Bull. Med. Paris*, Sept. 13, 1924). In the light of the theory of the nervous origin of lichen planus his results are interesting.

He applied the rays to an itching patch. Within twenty-four hours the itching had ceased and within three weeks the eruption had disappeared. He tried the same method on a second case, treating the patch which had appeared first, but met with no result whatever. Then he exposed the intrascapular region, although there was no eruption there, and at once the papules began to fade. His explanation is that the rays had acted upon the sympathetic nerves in the region exposed.

Acting upon this suggestion he treated ten other cases with intrascapular exposures and met with success in all. He says that subjective improvement is seen within a day or two, after a period of exacerbation akin to that seen in the Herxheimer reaction. Then the papules on the trunk, arms, thighs and legs fade out in turn.

In one case he supplemented the intrascapular with lumbar exposure. These are the regions where the sympathetic nerves seem most accessible to radiant influence.

Spillman and Watrin have also treated lichen planus by means of the x-ray, employing the technic of Bodier for anterior poliomyelitis (*Med. Paris*, 7:115, 1925). They divided the spine, from the first dorsal to the fifth lumbar, into five regions. Each field was then exposed to a dose of 3-4 H units, perpendicular to the

laminae, their idea being to act upon the spinal cord directly. A single exposure produced retrogression of the papules and relief from itching in from ten to fifteen days. Soon thereafter all signs disappeared.

Cracked nipples have been treated by Chatin with the quartz mercury lamp (*Bull. de l'Acad. de Med.*, 94:828, 1925). He gave his treatments every second day. Beginning with two minutes, he increased the length of exposure by two minutes at each successive treatment until he was giving a ten-minute exposure at each sitting. He reports complete recovery in one or two weeks.

CLINICAL

The etiology of *Acrodynia*, *Erythredema*, continues to interest clinicians. Warthin (*Arch. Path.*, 1:64, 1926) reports necropsies on two cases clinically typical. He has this to say about the pathologic findings. His two cases do not support the theory of a polyn neuritis as the essential feature of the disease; neither do they justify the use of the term erythredema as a fitting designation, as there was no edema of the corium. Warthin could find no evidence of a specific etiological infection nor any evidence to connect the disease with the tonsils. In fact the changes in the skin and central nervous system suggested to Warthin the early erythema stage of pellagra. The changes in the skin were identical also with those found in certain forms of light sensitization, xeroderma, fagopyrism and in certain stages of roentgen ray and ultraviolet light erythemas. The entire picture suggested either a food deficiency or a toxic state action on persons of hypoplastic constitution which affected the reticulo-endothelial system of the meninges and skin, the vegetative nervous system and possibly lead to a light sensitization. Powell (Bos. M. and S. J., 191:24, 1926) believes the disease to be due to some specific organism not yet isolated, or as yet unrecognized, which being absorbed into the tissues, gives rise to nervous and toxic manifestations. In some cases the tonsils, the adenoids or the nasal sinuses are the primary seat of the organism and in other cases the mouth and gums.

Livedo Reticularis is not, of itself, a disease of particular importance but the attempt to interpret its meaning often leads to important facts.

Williams and Goodman (*J. A. M. A.*, Sept. 26, 1925) divide the cases of mottling of the skin, occurring in children, into three groups: (1) *Cutis Marmorata*, a transitory mottling occurring on exposure to cold and probably the result of imperfect vaso-motor control; (2) *Livedo Reticularis Idiopathica*, a permanent mottling in which the cases show a great variation in the amount and the arrangement of the discoloration. The one constant pathological change is vascular dilatation; (3) *Livedo Reticularis*

Symptomata, in which inflammatory changes are demonstrable. The commonest type in this group is erythema ab igne due to prolonged exposure to intense heat, as in stokers. But, more important, both tuberculosis and syphilis may cause the condition.

In all cases there is an anomaly of the cutaneous blood vessels which condition may govern the distribution of the eruption due to other causes, notably tuberculosis and syphilis.

URTICARIA

Urticarial manifestations are so common an accompaniment of so many skin diseases of so many varied types that an appreciation of the mechanism of wheal formations may lead to a fuller appreciation of the genesis of the diseases of which they are a part.

Pileher studied wheal formations by the intradermal injection of codeine solution in a series of normal and sick infants and children (*Am. J. Dis. Child.*, 31:77, 1926). He found that the formation was lessened in all cases of edema, regardless of the cause, nephritis, cardiac decompensation, leukemia, malnutrition, or in such ill defined skin infiltrations as occur in cretinism, myxedema, sclerema and scleroderma.

Wheal formation is normal in nephritis without edema, in valvular and congenital heart disease without edema.

Pileher also found (*Am. J. Dis. Child.*, 31:96, 1926) that low serum calcium and phosphorus, even to one-half the normal, did not interfere with wheal formation.

The bearing of this lies in the fact that the custom of administering calcium in some form in cases of urticaria has grown to be pretty general. According to Pileher the custom has no value.

Duke has been viewing Urticaria and like dermatoses from another angle which he calls *Physical Allergy*. By the term he means sensitiveness to physical agents such as heat and cold. He says that it has long been recognized that certain skins are hypersensitive to heat and sun and others to cold and that in such skins exposure might be followed by an eruption.

Such hypersensitiveness has never been fully explained. In the cases of vesicular eruption which follow exposure to the sun or even, in extreme cases, exposure to strong light it was supposed that the photosensitive substance, hematomorphyrin, was somehow concerned in producing the eruption. More than that we do not know.

Duke now advances the theory that all these cases of hypersensitiveness to light, heat and cold are due to a physical allergy, that is, that somehow some physical substance has sensitized the skin.

He says that there are two types of physical allergy, one in which the reaction is strictly lim-

ited to the area exposed and one in which the reaction may involve not only the exposed regions but also regions at a distance. Sensitiveness to heat he finds more common than sensitiveness to cold.

The eruption varies in its intensity and in its time of appearance according to the degree of sensitiveness in the patient and to the duration and intensity of the exposure. In highly sensitive persons itching and erythema often appear in less than a minute. Edema usually appears within six minutes. In mildly sensitive cases the reaction is slower and manifests itself not by edema but by proliferation of the epithelium, desquamation and increased secretion.

In a majority of the cases the reaction follows a change in temperature rather than an exposure to any specific temperature; that is, patients sensitive to cold react more markedly if they are previously exposed to heat and those sensitive to heat react more markedly if previously exposed to cold. Heat sensitive patients often run a subnormal temperature and react to any rise as, for example, a rise caused by an emotional upset.

Schildkraut's case illustrates the effect of the emotions on these hypersensitive skins (*Arch. Derm. and Syph.*, 13:3, 1925). In his patient, a woman aged 18, urticaria was prone to appear on the slightest exertion, emotion or exercise.

In Dr. Cummings' case, a woman aged 28, which was exhibited before the New England Dermatological Society, for seven years exposure to strong sunlight has brought out an eruption of urticaria. Even brief exposure brings out wheals which last about twenty minutes. Unlike Bingham's case, window glass did not protect the skin. The violet rays were also capable of producing a reaction.

Dr. Oliver before the Chicago Dermatological Society (*Arch. Derm. and Syph.*, 12:3, 408, 1925) showed a patient who for eight years had had an urticarial and papular eruption whenever any portion of the skin was exposed to sunlight. And nothing but sunlight would produce the eruption.

Beinhauer (*Arch. Derm. and Syph.*, 12:1, 1925) reports the case of a male, aged 25, on whose skin, whenever exposed, there developed in five or six minutes urticarial wheals which lasted from thirty minutes to twelve hours. The skin was hypersensitive to the unfiltered quartz mercury lamp as well as to direct sunlight. All other forms of light failed to affect the skin as, for instance, light filtered through an electric light bulb, through ordinary window glass, colored glass and other sorts of protective substances. Positive reactions were obtained with nickel oxide glass which permits only the near-violet rays to pass. Epinephrin hindered and controlled the reaction from which observa-

tion he concludes that the vagus vegetative nervous system is concerned.

Goeckermann (*Arch. Derm. and Syph.*, 12:3, 1925) reported the case of a young woman still under observation. Her basal metabolism was down to -15 or -20. Under thyroid medication her metabolic rate improved and with it the state of hypersensitiveness, so that now she can expose herself to light without ill results.

HERPES ZOSTER AND VARICELLA

Reports continue to come in which seem to establish at least a close relationship between these two diseases—providing the diagnoses are correct. Lipschütz and Kundratitz (*Wien. klin. Wchnschr.*, 38:497, 1925) have been working with the virus of zoster. The first, in 1920, succeeded in inoculating the rabbit cornea with the contents of a vesicle of zoster and in recovering the zoster bodies. Kundratitz has demonstrated that children up to five years of age are susceptible to inoculation with the virus. The incubation period was from five to fifteen days. Some patients developed a generalized eruption indistinguishable from chicken pox. Other children who came in contact with them developed an eruption which was diagnosed as chickenpox. It was also demonstrated that the serum from zoster convalescents protected against varicella.

Zoster is not very common in childhood. Varicella is. Could it be, by any chance, that now and then the vesicles of varicella are so arranged as to simulate the distribution of a zoster?

Pancoast and Pendergrass (*Am. J. M. Sc.*, Sept., 1924) believe that zoster occurs frequently enough in association with Hodgkin's disease to be considered a manifestation of Hodgkin's in the skin.

FUNGUS DISEASE OF THE SKIN

In view of the growing tendency to regard, even in the absence of demonstration by the microscope, all scaling and vesicular eruptions of the toes and fingers as manifestations of a fungus infection Cornblut's article (*Arch. Derm. and Syph.*, 13:5, 1926) is very timely. As he puts the case, "It has been suggested . . . that the frequent finding of fungi in the various cases of vesicular, papular and squamous dermatitis of the feet and hands was an evidence of the ubiquitous distribution of fungi on the human skin and not an evidence of pathogenicity."

In order to determine whether or no fungi did occur frequently on apparently normal skin, Cornblut examined one hundred patients in whom there was neither a history nor clinical evidence of any disease.

He recovered pathogenic fungi from only three cases out of the hundred.

Burgess (*Arch. Derm. and Syph.*, 12:12, 1925) investigated 140 cases, diagnosed clinically as ringworm of the feet or hands, by means of cul-

tures and the microscope. Under the microscope 130 cases were positive, 10 were negative. The cultures were negative in 16 cases, although the results with the microscope were positive.

Further, he confirmed Sabouraud's statement that the same fungus may produce clinically different types of lesions in different persons and that different fungi may produce clinical lesions which are practically identical.

It has frequently been reported that trichophyton infections of the hands and feet have been accompanied by a sudden outbreak on the arms and legs and even on the trunk.

Williams (*Arch. Derm. and Syph.*, 13:5, 1926) believes that these generalized eruptions are hematogenous. He says: "Many patients show constitutional as well as local symptoms; the outbreak is symmetrical and simultaneous on widely separated parts of the body; it spreads rapidly; and in some cases, mycotic organisms, proved by cultures to be the same as those found in the primary focus, have been found in the blood, in the lymph nodes and in the deeper parts of the eruption itself."

He likens these sudden, generalized eruptions in the presence of a previous, localized mycotic infection to the generalized papular eruptions known as tuberculids which occur in the presence of a known, localized tuberculous infection.

While the trichophyton is perhaps the organism most commonly found in connection with the fungus infections of the feet and hands, yeast infections are by no means uncommon. Beeson and Clark have recently published a most exhaustive review of the literature of yeast infections and as well a report of their own researches (*Arch. Derm. and Syph.*, 13:5, 1926).

They conclude that yeast infections occur most frequently in the interdigital spaces; that they are more common than are generally supposed; that the most common site is the third interdigital space; that, clinically, the affection shows as a central erosion surrounded by an irregular collar of undermined macerated epidermis; and that even in lesions which are identical clinically a variety of yeasts are found.

Myers and Thienes tested the fungicidal activities of a number of volatile oils, primarily in connection with the treatment of a mycotic infection of fruit handlers on the West Coast due to a moniliosis, but, secondarily, the test was extended to include epidermophyton infections. In both types of cases they found a mixed spirit composed of 5 per cent thymol and 2 per cent cinnamon, painted on the sites of infection, brought "speedy relief of discomfort and promotion of healing".

LUPUS ERYTHEMATOSUS

The etiology of lupus erythematosus continues to interest many students of the disease. The opinion of the present day is that the old

theory of the tubercular etiology has too many gaps, leaves too many cases unexplained. Hence most writers agree with McLeod that it is best to say merely that the disease is of toxic origin. Nevertheless reports of cases associated with tuberculosis continue to be published in such numbers as to justify the concession that the tubercle bacillus is one of the chiefest causes.

Keefer and Felty (*Bull. Johns Hopkins Hosp.*, Sept., 1924) report three fatal cases with necropsies in two. The only pathologic feature common to both was small groups of tuberculous glands although no generalized lymph gland tuberculosis could be found. In one case tubercle bacilli of the human type were recovered from a lymph gland which showed none of the characteristic histological change.

Dryson's report (*But. Med. J.*, Sept. 20, 1924) illustrates the point made in the introduction.

Dryson studied 35 cases; 70 per cent (only) reacted either to human or to bovine tuberculosis, and, what is noteworthy, 2.8 per cent reacted to a streptococcus vaccine. He states that the cases reacting to tuberculin differed clinically from those reacting to the streptococcus.

He also tested the apparently normal skin of a patient who had reacted positively to bovine tuberculosis. After four daily applications the skin showed a well marked reaction. According to Dryson this indicated that the whole skin was sensitized to a specific toxin.

From this result arose the question as to whether the sensitization should be considered as secondary to the lupus erythematosus or the lupus erythematosus be considered as the result of sensitization from another source.

Monadelli (*Arch. Ital. Dermat. e Sifil.*, 1:44, 1925) observed a girl of 20 who presented at one and the same time a lupus erythematosus, a necrotic tuberculid, scrofula and lupus vulgaris. From this single case he draws the unwarranted conclusion that lupus erythematosus is often a cutaneous tuberculid.

Cannon and Ornstein (*Arch. Derm. and Syph.*, 12:5, 1925) say that they agree with McLeod that Lupus Erythematosus, according to the prevailing dermatologic opinion, is not due to one specific causative agent but may be produced by a variety of septic or toxic causes.

In their series they studied twenty-three cases. They report that "of the twenty-three cases tuberculosis was produced in five instances in guinea pigs by the inoculation of a part of the biopsy tissue". From this positive result in only five out of twenty-three cases they drew the conclusion that "this fact, while not conclusive proof, would point to the tubercle bacillus as the etiologic factor in this disease". To the casual reader this conclusion seems hardly justified.

Throne's investigations of the disease (*Arch.*

Derm. and Syph., 12:1, 1925) are more than usually interesting because they include a most exhaustive examination of internal conditions as well as the usual cutaneous criteria.

Altogether there were 38 cases in his series, 13 males and 25 females, ranging in age from 17 to 50. The duration of the disease, in the cases studied, varied from four months to 20 years.

Throne considers the positive tuberculin skin test, on which many writers lay great emphasis, as of very little value. In his cases the intracuticular injections of various dilutions of old tuberculin were positive in all cases but one. He quotes Priess to the effect that a prolonged reaction indicates an inactive tuberculosis. In Throne's cases the reaction endured from one week to twenty days.

The Wassermann reaction was negative in all cases but one. In this one a venereal infection was admitted.

Animal inoculation tests were made in 6 cases. All were negative.

The blood complement test was negative in 26 cases and positive in 4—about 13 per cent.

Twenty-six cases were examined for focal infections—19 showed dental infections alone; 2 tonsils and teeth; 1 tonsils, teeth and antra; 1 dental and nasal infections; 2 cases showed no infection.

Fourteen cultures were made—5 showed streptococci (one being hemolytic); 2 staphylococcus albus; 1 mixed streptococci and staphylococci; 3 the staphylococcus aureus. In 3 cultures there was no growth.

Where the growths on culture were positive, autogenous vaccines were made and administered weekly. The results were entirely negative.

ERYTHEMA INDURATUM

This disease, like Lupus Erythematosus is considered by many to be tuberculous even though, as in the case of the latter, it is difficult to furnish the actual proof.

Pautrier and Levy (*Bull. Soc. Franc. de Derm. et Syph.*, 1925) could find no tubercle bacilli under the microscope yet inoculation of a guinea pig produced induration and lymph node enlargements.

Nicholas, Gate and Ravault (*Ann. de Derm. et Syph.*, Jan., 1925) examined two cases microscopically. The important lesions were vascular. It was the arteries which were chiefly involved, not the veins.

LEPROSY

The use of the ethyl ester of chalmooegra oil in the treatment of leprosy has given a new lease of life to the study of the disease because it has so markedly increased the hope of cure. Clinical symptoms, serology, bacteriology and

therapeutic measures are all receiving fresh and interested scrutiny.

One manifestation of this revival of interest is seen in the critical study of leprosy in New York City by Fordyce and Wise (*Arch. Derm. and Syph.*, Jan. 1, 1925).

First, they call attention to the fact that while the clinical diagnosis can usually be confirmed by the laboratory such is not invariably the case. It sometimes happens that the nasal smears, the serum from a curetted papule and even tissue from recently broken down nodules from cases of undoubted leprosy are all negative. It is in such cases that the work now being carried on in sero-diagnosis may find great usefulness.

The length of the incubation period has always been in doubt. Fordyce and Wise believe that it is a matter of years. They quote Meier and Rogers on the question. Meier gives the average period of incubation as eight years, basing his estimate on his observation of lepers in India. Rogers states that the disease has been encountered in children of two years of age. In fact he believes that childhood is the age of greatest susceptibility. Apparently the incubation is much slower in adults.

In view of the widespread fear of contagion prevalent in the public mind it is both interesting and consoling to read that Fordyce and Wise do not believe that it is particularly contagious under ordinary conditions. It is contagious to be sure they say, but only slightly so.

The behavior of the Wassermann reaction in leprosy gives emphasis to the warning that a positive reaction without confirmatory clinical symptoms being present does not always mean syphilis. The point is proved by the fact that Goodpasture obtained positive Wassermann reactions in 60% of the cases of untreated leprosy tested.

Callender and Bitterman were interested in the study of the etiology of leprosy (*Philippine J. Sc.*, 27:9, 1925). Their data combined with data from other sources favor the theory that the organism enters through an abrasion or other similar wound in the integument. Their conclusions also agree with those of Rogers and other reporters that the first decades are the time of greatest susceptibility to infection.

Fordyce and Wise spoke hopefully of the value of serology in the diagnosis of leprosy. Schöbl and Basaca (*Philippine J. Sc.*, July, 1924) did considerable work with the globulin-precipitation test as recommended by Klausner. They report that the precipitate which forms with positive sera behaves in many respects like globulin. It is insoluble in distilled water but is soluble in physiologic sodium chloride solution and also in concentrated. Inactivation decreased the reactivity of the sera. They state that the conditions found in the sera of lepers

and of certain other patients may be conceived as an upset balance between salts and globulin, possibly euglobulin. Therefore it has not the significance of a strictly specific immune reaction, but, nevertheless, owing to its apparent constancy in leprosy it may prove to be a help as an adjuvant test.

More recently Frazier and Wu (*J. Trop. Med.*, 5:297, 1925) have investigated the Sia globulin-precipitation test, reporting their experiences in 32 cases. The reaction was positive in 17 of the 32, being particularly frequent in the nodular and mixed types of leprosy. They also estimated the percentage of blood serum globulin in all the cases. The average was found to be 4.68 per cent in the nodular types, 4.52 per cent in the mixed, 4.23 per cent in the active-maculo-anesthetic and 3.11 per cent in the latent maculo-anesthetic.

They could not see that there was sufficient relationship between the blood serum globulin content in the cases treated with the ethyl esters of chalmogra oil and in the cases not so treated to make the test of value as an index of the efficiency of treatment.

The increased and still growing optimism as to the curability of leprosy has already been alluded to. Benchetrit, chief of the leprosy service in Venezuela, is so firmly convinced of its curability that he is devoting his energy to spreading the new concept. He has, recently, published an article (*Leprosy, Caracas*, June, 1924) in which he reproduces a number of encouraging letters sent him by various heads of leprosy clinics.

Stevenson also has reported his serological studies made on 52 cases of leprosy (*Indian Med. J. Res.*, 12:583, 1925). The series comprised 15 anesthetic cases and 37 tubercular.

Of the fifteen anesthetic cases, 2 gave complete Wassermann reactions with all strengths of extract used and 2 were as completely negative. Of the remaining 11 cases only 7 gave a positive reaction with an extract as strong as 10%.

Thirty-three tuberculous cases were examined with all strengths of extract. Seven reacted completely to all strengths. The results with the remaining 26 cases were variable.

Stevenson found that, on the whole, the tuberculous type of leprosy gave a positive Wassermann reaction more often than the anesthetic.

He found also that the globulin content may be high and the Wassermann reaction nevertheless negative. A drop in the globulin content may be the first sign of improvement even though the Wassermann reaction remains strong.

PSORIASIS

There is nothing important to report concerning psoriasis.

Schamberg has published an article on The Known and the Unknown about Psoriasis (*J. A. M. A.*, Oct. 18, 1924) which contains two statements of a certain interest.

One has to do with the incidence of the disease. Schamberg found that in his series the disease was familial in 13%. Twice husband and wife were both afflicted.

The second statement deals with treatment. In his opinion the best method of treatment for a psoriasis in the active stage is to put the patient on a low protein diet, one containing not more than 4 grams of protein a day.

So far as is known to the writer, Ravaut, Bith and Ducourtieux report the first cases of psoriasis ever treated by insulin injections. They report three extensive cases in which this new remedy was used. They say that the itching disappeared rapidly and that in from three to four weeks the eruptions, too, had vanished. In two cases, however, it reappeared somewhat. One of these recurrences was effectively treated by a further course of insulin. In one case there was present a hyperglycemia. In the other two the blood sugar was normal.

In 9 out of 10 cases of psoriasis Spillman and Carillon (*Bull. Soc. Franc. de Dermat. et Syph.*, 22:R. N. 63, 1925) found either definite endocrine disorders or else disturbances of the vago-sympathetic equilibrium. Benefit was derived, in the first class, from appropriate glandular therapy and, in the second class, from the administration of the thymus.

MYCOSIS FUNGOIDES

Fraser (*Arch. Derm. and Syph.*, 12:6, 1925) calls the attention of the general practitioner to the disease because of several interesting relationships.

First, mycosis fungoides possesses clinical interest because of its clinical features. At the beginning it is an innocent looking dermatitis which, in time, becomes indurated and then ulcerative and finally causes death.

Second, the histological changes in the skin have given rise to much discussion among pathologists as to the proper classification of the disease.

Third, the blood picture excites the interest of the blood expert. In the opening stages, the blood shows nothing remarkable but, in the late stages, it may develop a picture indistinguishable from that seen in lymphatic leukemia.

Fourth, the general involvement of the lymph nodes and the spleen bring the diagnosis of Hodgkin's disease into question.

From his study of five cases Fraser has reached certain conclusions. All his cases presented clinically a typical picture of mycosis fungoides. Histologically, however, he believes the picture is one of lymphosarcoma. But, he continues, on morphologic grounds, the sugges-

tion is offered that the lesions arise from the reticulo-endothelial cells of the skin which exist in great numbers in the perivascular tissue in the upper portions of the corium. Should this view be confirmed the lesions must be classified as reticulum celled sarcomas.

Fraser believes that the tissue changes are neoplastic from the very outset and that the inflammatory features of the disease are to be interpreted as a reaction to the development of the tumor cells.

Finally, he believes that there is a genetic relationship between mycosis fungoides, lymphosarcoma and lymphatic leukemia.

This belief lends additional interest to Ketron and Gray's article on *Universal Lymphatic Leukemia* of the skin (*Bull. Johns Hopkins Hosp.*, Dec., 1923). In their case the blood showed a decrease in erythrocytes. The white cells were markedly increased but with a relative decrease in the polymorphonuclear leukocytes and an absolute increase in the small lymphocytes. There were also many myeloid cells and abnormal lymphocytes.

Clinically the skin was profusely scaling and diffusely reddened. There was great loss of hair. About the ankles were papillomatous growths. The palms were hyperkeratotic. The nails were thickened and loosened from their under attachments.

Sequeira and Panton (*Quarterly J. Med.*, Oxford, 18: 250, 1925) report five cases which they call *Lymphoblastic Erythroderma*. The most prominent physical sign was the generalized redness of the skin. Glandular enlargement was present in all cases but never so prominent as in chronic lymphatic leukemia. The course of the disease extended over several years. Treatment was unavailing.

The associated blood picture was of a peculiar type. There was more or less anemia of the secondary type. Occasionally the color index was high. There was both a relative and an absolute increase in the small lymphocytes. The total leucocyte count varied from 8000 to 60000 of which the lymphocytes were sometimes as much as 80%.

SUPREME COURT UPHOLDS AMERICAN DRUGS

A DECISION of the highest importance to every physician, pharmacist, drug manufacturer and, in fact, every user of drugs in the United States, was rendered by the Supreme Court of the United States on October 11, 1926, when this highest tribunal of the Nation declared that the Chemical Foundation has been acting legally and properly in the purchase of the foreign drug and chemical patents, during the War, and licensing American Manufacturers to produce these essential substances in this country.

The sale of the German patents to the Chemical Foundation took place during President

Wilson's administration and had, without doubt, a distinct influence upon the outcome of the War, because this transfer permitted American concerns to begin at once the production of various drugs and chemicals which had, theretofore, been made only in Germany, and whose importation ceased with our entry into the war.

President Harding, apparently laboring under some misapprehension as to the purposes and functions of the Chemical Foundation directed that suit be brought by the Government to set aside the sale of these patents to the Foundation.

The case was first tried in the Federal District Court of Wilmington, Del., and resulted after weeks of evidence taking, in a finding against the Government on all points.

The case was appealed to the Circuit Court, which upheld the decision of the District Court in every particular.

A final appeal carried the question to the Supreme Court of the United States, where evidence was heard more than a year ago. The long delay in rendering a decision has afforded time for mature consideration. The Court has decided unanimously that the sale to the Chemical Foundation was valid and legal and that the Foundation has made no improper use of the powers which it thus acquired.

This decision is a momentous one for everyone who has anything to do with drugs and chemicals in any way whatever.

To the physician it means that he will have a steady and regular supply of reliable drugs, of American manufacturers, which can never again be upset or cut off by the vicissitudes of war. The same considerations apply to the pharmacists. Among the vitally necessary drugs affected may be mentioned the arsphenamines, cinchophen, barbital, the flavines, procaine and a host of others.

To the drug manufacturer, who has invested thousands of dollars in apparatus for the manufacture of drugs and chemicals under the Foundation's licenses, it means relief from a certain degree of anxiety (though the outcome of the case could scarcely have been in doubt) and a tremendous inspiration to further investigations looking to the production of more and better drugs and chemicals for America.

To the nation at large, it means that reliable medicines will continue to be sold at reasonable prices; and, more or less indirectly, that the dye industry of America which is now in a flourishing condition, thanks to the Chemical Foundation, will be available for government uses should we become involved in another war.

Nor are medicine and pharmacy the only lines of endeavor affected by this momentous decision. The steel and packing industry and many others will be vastly benefited by the freedom of chemical investigation and activity which is now assured them.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 12451

A CARDIAC CASE

MEDICAL DEPARTMENT

A Norwegian mechanic forty-seven years old was admitted through the Emergency Ward September 20, *in extremis*. The history was given by his wife.

Ever since his youth the patient had been dyspneic on exertion and had had occasional attacks of precordial pain, though he had never been ill enough to go to bed. Eight years before admission he had two attacks of influenza. With the second he was in bed two weeks. He was given a number of injections into his hip. After this he was more dyspneic and had precordial pain oftener. Two years later the pain became still worse. The attacks occurred every day or so, lasting sometimes half an hour. The pain radiated down the left arm. It was usually brought on by exertion, but occasionally occurred when he was lying in bed. The dyspnea also became worse. He was able however to continue work until Christmas, when he had a severe attack brought on by walking in a cold wind. He stopped work for a week and was in bed for a few days. About this time he began to have a dry rasping cough, which persisted. Three weeks before admission the present attack began with a rapid onset of increased dyspnea and more severe pain, though there was no sudden extremely severe attack of either. He began to have orthopnea for the first time. His feet became swollen and painful. One attack of pain lasted four hours; the others not more than half an hour. He grew steadily worse. Since the onset of the attack he had not worked. For a week he had been in bed, with an occasional attack of palpitation; no cough. Eating brought on the pain. A month before admission he had poor appetite, and lost nineteen pounds. Since that time his appetite had been good, and he had lost no more weight.

His wife's second and third pregnancies ended in miscarriages at two months. Four children were living and well. The patient's past history was negative except for scarlet

fever in boyhood, possible tonsillitis, and constipation. He became dizzy and fainted when he had the hip injections. He drank an occasional glass of whiskey.

Examination showed a moderately well developed, poorly nourished man lying propped up, dyspneic, orthopneic, cyanotic, with pallor of the mucous membranes. There was some edema of the upper and lower eyelids. The respiration was Cheyne-Stokes. The teeth were neglected, many carious. There was pyorrhea. The lungs were clear in front. Posteriorly there was dullness with occasional coarse râles at both bases, and limited excursion of the diaphragm on both sides. The maximum impulse of the heart was diffuse and heaving, best seen in the sixth space just anterior to the axillary line. The left border of dullness coincided, 12 centimeters from midsternum. There was no other enlargement to percussion. A systolic thrill was felt at the base. The sounds at the apex were barely heard. The action was regular at times for fifteen or twenty beats; then almost completely irregular for ten or fifteen beats, or there were scattered extrasystoles thrown in. The dominant rhythm was regular. A short soft systolic murmur was heard at the apex, a short rough diastolic and a long rough systolic at the base, best heard at the level of the third interspace, but also heard to the right of the sternal border to the episternal notch and along the left sternal border to the midclavicular line. The pulse was poor in quality, rate 112, with dropped beats. The artery walls were moderately thickened. The blood pressure was 100/80. Electrocardiogram showed many ventricular premature beats and tachycardia with a rate of 130; partial auriculoventricular block and intraventricular block. The liver edge was palpable two fingerbreadths below the costal margin. The bladder was distended. There was moderate edema of the lower legs. The pupils and reflexes were normal.

The urine is not recorded. Blood examination showed 9,200 leucocytes, 88 per cent. polynuclears, hemoglobin 50 per cent., 3,400,000 red cells, with slight achromia and anisocytosis; platelets reduced. A Wassermann was negative. The non-protein nitrogen was 44 milligrams per 100 cubic centimeters.

Orders: Karell diet. Limit fluids to 1500 cubic centimeters. Morphia sulphate one-sixth grain every three hours p.r.n. Digitalis was given as below. Soapsuds enema in the morning. Nitroglycerin 1/100 grain dissolved under tongue p.r.n. for acute attacks of shortness of breath.

The temperature was 100° to 103.9°, the pulse 108 to 139, the respiration 16 to 31.

The patient was given four and a half grains of digitalis by mouth at six and ten p.m. the day of admission and five cubic centimeters of dig-
a-

len intravenously at eleven a.m. the following day.

The afternoon of September 21 he died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

"The pain was usually brought on by exercise, but often lasted half an hour". We certainly have one point for and one point against its being angina.

It is so common as to be almost a classic that walking in a cold wind tends to bring on anginal attacks. We tell patients, "You can walk in ordinary weather, but you must not try to walk in a cold wind".

Dr. Means, will you give some of the recent theories as to the cause of orthopnea?

DR. JAMES H. MEANS: There are a variety of theories. Dr. A. V. Bock's is that when one lies down there is more blood and less air in the chest than when upright. The circulation is more rapid in the recumbent position, for the return flow of blood to the heart is greater. When the heart is diseased more blood may be returned to it than it can handle, at least in the recumbent position. Sitting such a patient up has much the same effect as a venesection, to decrease pulmonary congestion and increase vital capacity, thus rendering breathing easier.

DR. CABOT: We cannot say from the history of miscarriages and births of healthy children that there was or was not syphilis. There probably was not.

The history of this man, who is forty-seven years of age, is of dyspnea, orthopnea and dropsy with pain which shows some characteristics of angina. But we do not yet know whether it is angina or not. He has some indications of syphilis. He has been given injections, as his wife says into the "hip", presumably the buttock. His wife has had two miscarriages, the second and third pregnancies, although she has had living children before and since. So we have a suspicion but no proof of syphilis,—of angina and syphilis.

NOTES ON THE PHYSICAL EXAMINATION

What is the distinction between development and nourishment? If we saw a thin man six feet tall, should we say that he is well developed and poorly nourished, or well nourished and poorly developed? In hospital work, if a person is too short we say he is not well developed. We do not go into the mental development or the development of his senses or of special parts and organs. But if he is undersized he is not properly developed. "Poorly nourished" has to do with the development of muscle and fat,

especially the latter. If he is lacking in fat or in fat and muscle we call him poorly nourished. The phrase used in this case should mean that he is rather short and in some portions of his anatomy at any rate distinctly thinner than he ought to be.

How could he be both cyanotic and pale in the mucous membranes? We might have pallor in one place and cyanosis in another, but can we have both in the same place?

DR. MEANS: Yes, I think we can. Supposing we had a man with an anemia that gave him pallor of moderate grade and somebody asphyxiated him, what color would he show? He would still have the pallor, but in addition some cyanosis. I think we oftentimes have people whose mucous membranes are pale, but with a tinge of blue, although in very severe anemia there is not enough color to show any base tint even with profound anoxemia.

DR. CABOT: Then it is light blue—I think that is what would show. What I have often seen and what I believe this man had, is pallor in the face and cyanosis in the lips. I do not so far agree with Dr. Means' point, although I think he is more likely to be right on this particular point. Cyanosis is a pretty vague term. If we were dealing with questions of brown in the skin we should try to be much more specific than we are here.

What is indicated in the lungs by the physical examination?

A STUDENT: There must be some fluid, first of all from the râles and then from the limited excursion.

DR. CABOT: There may be other reasons for these signs. But in a case like this we assume that râles and dullness are due to edema and hydrothorax. Of course we have to remember that a high diaphragm with a big liver and spleen, even without any passive congestion in the lungs, can give us the same signs, although that could probably not produce râles. The probable inference here is edema of the lungs, with or without hydrothorax in the pleural cavities.

The "axillary line" means I suppose the mid-axillary line, and leaves us in no doubt about the heart's being enormously increased in size, both to the left and downward. What other possibility is there besides hypertrophy of the heart?

A STUDENT: Displacement.

DR. CABOT: Yes. It might be pushed over. Twelve centimeters from midsternum is not very large unless he was a small man. Ordinarily twelve centimeters would not carry us as far as the midaxillary line. I take "no other enlargement to percussion" to mean that there was no diminution in the area to the right of the sternum such as we might have if the heart was pushed over by air, nor any change in the

shape of the cardiac dullness such as it would show if it was pushed over by fluid. I think we may take it this heart was not pushed over, but was really enlarged.

Systolic thrill at the base ought to mean that it was palpable over a considerable area to right and left of the sternum, in the region of the second intercostal space. The systolic murmur is also heard over a very large area.

What should we say about the blood pressure in this case?

A STUDENT: It is slightly below normal, and the pulse pressure is very small. The diastolic pressure is high in proportion to the systolic, but it is normal otherwise.

DR. CABOT: I agree. There are only twenty millimeters of pulse pressure, which is very small. What other fact in the physical examination does that correspond to?

A STUDENT: Weak heart sounds.

DR. CABOT: Yes. How does it match up with the diastolic murmur? It is opposed to what we expect with most diastolic murmurs. Most diastolic murmurs go with an enlargement and not a diminution of the pulse pressure. So we think less of the diastolic murmur and more of the systolic than we otherwise should.

I am surprised that there was not more than moderate edema, as he has been sick so long.

I suppose he died before they got around to urine examination.

Achromia is one of the things we very rarely find in pernicious anemia. It is one of the most important points, next to the size of the red cells, in the diagnosis of what we can say here is secondary anemia with leucocytosis. I should not lay much stress on the leucocytosis. It is not enough to amount to anything.

DR. MEANS: Which do you think he was—pale or cyanotic?

DR. CABOT: I think he was both, but not in the same place.

DR. MEANS: Pallor is related to intensity of color, cyanosis to quality of color. It is perfectly possible to have less hemoglobin than normal flowing through the mucous membranes and at the same time to have it not oxygenated properly, so that the patient is both pale and cyanosed.

DR. CABOT: The non-protein nitrogen is normal.

I thought the Karell diet was milk only, and a good deal less than 1500 cubic centimeters total liquids.

DR. MEANS: The Karell diet is usually 800 cubic centimeters of milk. I think that is what Karell advises, but sometimes they give the milk and a little additional fluid, depending on the urgency of the particular case.

DR. CABOT: I have seen very few patients who were able to bear a strict Karell diet. I

think they generally mean milk diet when they say Karell diet.

DR. MEANS: The Karell diet strictly means milk and nothing else.

DR. CABOT: That is a very different thing.

All of this history falls within a single twenty-four hour period, so that we really do not have much time to chart pulse, respiration and temperature.

We cannot accuse them of neglecting digitalis therapy. I am not convinced that he got too much, but he certainly got enough.

DIFFERENTIAL DIAGNOSIS

One of the difficult points about the case is that since the history is given by his wife we are not sure about a good deal of it; for instance, his having dyspnea all his life. Also his pain. He did not have anything in the hospital apparently that was called by that name. So that we lack one of the most important elements in diagnosis, and that is the time element. We do not know when these symptoms began. My guess is that they began eight years or less before entrance, but that is only a guess, and the statement is made here that he has been dyspneic on exertion ever since his youth. There is no question that this man has some sort of heart disease, a circulatory lesion, but when we try to go further and say is it of the rheumatic, syphilitic, or hypertensive type we want to know how long it has been going on, because the rheumatic type is the only one that would give him dyspnea since childhood.

The next thing we are uncertain about is the question of syphilis. If we knew definitely about syphilis we might have a good deal more to say as to the nature of the underlying process, and also as to the part attacked, because rheumatism hits the mitral much more often than any other valve, while syphilis hits the aortic and the aortic only, and hypertensive disease does not hit any valve at all. But we cannot get at the underlying process so far as I see in any accurate way. He has been sick, I should judge, eight years. Maybe he has been sick only two, though there is some suggestion that he has been sick all his life.

What do we know about his heart? We know he has a big heart, a very big heart, if the examination is accurate. We know that he has some dropsy, but not so much as we should expect in a person close to death. It is not quite obvious that he died of passive congestion, though I suppose he did. One wonders if there was any anginal element in the death, as the history suggests, although it is not suggested in the hospital record. Death is not sudden enough to make us think of an embolic death. There is nothing to suggest embolism of a coronary, although he had pain lasting longer than angina does and coming something in the way that the

pain due to blocked coronary does. But I don't see that we have enough stress or pain here to make us think that he died of blocked coronary (cardiac infarct).

DR. MEANS: They sometimes do not have any pain.

DR. CABOT: But without it we should not be able to say that he died of blocked coronary.

DR. MEANS: No, but we could not say he died not.

DR. CABOT: That is true, and I am glad you brought it out. We cannot exclude it, but we cannot say he had it.

The electrocardiogram shows that the conducting process in the muscle is not good. That might go with definite myocardial scars and these myocardial scars with previous blocked coronaries. On the other hand we might get the same electrocardiograph effects with nothing to show for it in the muscle.

DR. MEANS: I wonder if there is anything else in the electrocardiogram. It ought to show a left axis deviation, and if it shows small complexes it might be diagnostically helpful. I wonder if those points are noted. Does it say anything about the complexes or axis deviation?

MISS PAINTER: No. I have given all there is.

DR. CABOT: I do not see that we have anything to call our attention to any organ outside the circulatory system. The troubles in the lungs and liver are best explained as secondary to the heart. I should say.

We are come now to the question of cardiac diagnosis. Outside the heart the main fact is secondary anemia. What sorts of heart trouble go with secondary anemia? Syphilis does sometimes, but rather rarely. Most of our cases of syphilitic aortitis, those who died of that, have a normal blood. What is the common type of heart trouble that shows anemia? Subacute bacterial endocarditis or acute ulcerative malignant endocarditis receives many names and is the commonest cause of heart trouble plus anemia. I do not mean to say he has it, neither do I mean to say that he has not. Second I would say, the rheumatic type, third the syphilitic, and last of all the hypertensive, for we rarely see an anemia with hypertension, unless in an old man.

A STUDENT: It seems as if his negative Wassermann was important.

DR. CABOT: What do you infer from that?

A STUDENT: It does not say anything about his having treatment, so very likely he did not have syphilis.

DR. CABOT: We can say certainly that we have no serological evidence of syphilis. That does not mean that we have not got syphilis. There are a great many cases of syphilis besides those under treatment that do not show anything in the blood. About twenty per cent. of cases of aortitis, aside from treatment, do not

show a positive Wassermann when they come to the hospital. So that the absence of a Wassermann here does not seem to help us a great deal, though so far as it goes it is against syphilitic aortitis.

A STUDENT: Wouldn't there always be leucocytosis with a subacute endocarditis?

DR. CABOT: No, we cannot say that. There is quite a respectable minority that do not have any change in the blood aside from anemia. I do not think we have the picture here of subacute bacterial endocarditis, although it is true that there is no single picture of that disease and that people die of it without characteristic symptoms. But in the first place the circulatory symptoms are in the foreground in this case, and that is not usually true in subacute endocarditis, which is primarily a type of septicemia. The septicemic symptoms are almost negligible here. He has had a little fever for one day, and that does not mean anything. Fever for a week or a month would mean something. His blood shows very little change, and while that does not rule out subacute endocarditis, it makes it improbable. There was no time for a blood culture. He had no evidence of emboli in the skin or elsewhere, which goes so often with that disease. It cannot be positively diagnosed, but it cannot be ruled out. My guess is that he did not have it.

I do not know that there is anything better to consider next than the heart murmurs. We have commented on the pulse pressure. We can say there is no evidence of a free aortic regurgitation here or he would have had a greater pulse pressure. If his diastolic murmur is of importance it does not seem to be of much importance. It seems as if his systolic murmur, which is loud and widely transmitted, might be of more importance. That is the hardest murmur to interpret. It occurs in all varieties of heart disease and in all varieties of disease that is not heart disease. It means of itself very little. It is perfectly consistent with aortic stenosis. The thrill is much more important than the murmur. It suggests aortic stenosis. In that ordinarily we get a low pulse pressure. We have that here. The fourth sign which we are always looking for in possible aortic stenosis is the diminution or absence of the aortic second sound.

I do not see why this should not be aortic stenosis. Aortic stenosis is ordinarily a rheumatic lesion, but does not generally show itself until late life. Most of the cases here have been over sixty when they died.

The hypertensive variety of heart trouble, with the pressure falling at the end of life, might give part of this picture so far as I see. But the anemia and the thrill rule it out.

Rheumatic mitral disease he might have. It would be strange that he should not have more arrhythmia if such a heart trouble had got as

far as killing him. It would be strange that there would not be more signs at the apex; this murmur is loudest at the base.

I think this is about as far as I can go. Of the four types of heart disease that often kill, rheumatic, syphilitic, hypertensive, bacterial endocarditis, taking no account for the moment of the so-called arteriosclerotic heart disease, which I do not know how to recognize, it seems to me this is not like rheumatic of the ordinary mitral type. There is a great deal against the syphilitic type. There is rather little in favor of the bacterial. I am inclined to think that aortic stenosis is as good a diagnosis as we can make. My guess is that it is wrong. This case does not breed true to any of the clinical pictures that I can think of. But we have to go for the nearest one, and I should say aortic stenosis. He may have had nothing but a hypertrophied and dilated heart. But it ought not to give such a murmur and it ought not to give a thrill.

Let us go back a moment to the thrill. We can rule out congenital heart disease, which is pretty unlikely at forty-seven. It does not seem likely, although one feature suggests it, namely that he had had trouble all his life. If we rule that out, the three common causes of thrill are aortic stenosis, aneurysms, and acute vegetative endocarditis, bacterial endocarditis. It is perfectly possible that he had an aneurysm, but we have no evidence of it. I am assuming that the gentleman who felt that thrill knew what he felt.

A STUDENT: If it were aortic stenosis should we get the pains he complained of?

DR. CABOT: Aortic stenosis is one of the lesions that goes with pain most often. Ordinarily it is the straight angina, and his attacks are not so described. I cannot explain those attacks unless in the way Dr. Means suggests, that he might have had a series of infarctions and a coronary block. I entertained that, but do not see how we can push it any further.

DR. MEANS: I agree with you that it is impossible to say. If I had to guess I should say syphilitic aortitis, with aortic valve disease and possibly with some coronary narrowing as well. There are several things about it that suggest coronary occlusion. This diagnosis I put first, but not a strong first. It is perfectly likely to be a rheumatic affair. I do not think it is bacterial endocarditis.

DR. CABOT: One of the things I ought to say is that my diagnosis does not account for the anemia. We always have to leave out something, and I prefer to leave that out.

A PHYSICIAN: Why do you pass over these injections and his wife's miscarriages?

DR. CABOT: Those are the two things in favor of syphilis, but they do not seem to me enough.

A PHYSICIAN: What else could he have had?
DR. CABOT: I think it is very probable that treatment was given for syphilis, but that does not prove that he had it. I do not know any diagnosis so often wrong down here at post-mortem. I have not the least doubt that they thought he had it. His wife had children before and after these pregnancies.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Aortic stenosis with regurgitation. Rheumatic type?
Congestive failure.
Coronary sclerosis?

DR. RICHARD C. CABOT'S DIAGNOSIS

Aortic stenosis and regurgitation.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion*

Endocarditis of the aortic valve with calcification, stenosis and insufficiency.

2. *Secondary or terminal lesions*

Chronic passive congestion of lungs, liver, spleen and kidneys.
Anasarca (slight degree).

3. *Historical landmarks*

Healed tuberculosis.

DR. MALLORY: The heart is the interesting thing about this case. It is quite an enormous one, of a size that we very rarely get except in hypertensive conditions or disease of the aortic valve, which he had.

The aortic ring was completely calcified all the way around. I could barely get the tip of one finger through the valve. There was quite marked stenosis and must also have been very considerable regurgitation through it.

As to etiology, I am quite reasonably sure that it is not syphilitic. The greater part of the aorta was practically normal. The few spots that showed anything showed only the yellow atheromatous plaques of arteriosclerosis. There were no syphilitic scars in it at all; and a syphilis that would touch only the valve without the aorta even in the immediate neighborhood is uncommon. Also, this type of quite extreme stenosis that we have here is not at all typical of syphilis. The thing almost suggests a calcified bacterial endocarditis in its appearance. At the time of necropsy there were no fresh vegetations on it, and culture from the heart was negative.

I have no explanation of his anemia.

The coronary arteries were completely free throughout their entire length. At one or two spots one could see a very small yellow plaque

of atheroma, but nowhere sufficient to cause destruction of the lumen. To some extent against its being of rheumatic origin is the fact that the mitral valve was completely free, although that by no means excludes the rheumatic possibility.

A STUDENT: Is there any reason for the interference with conduction?

DR. MALLORY: The calcification of that valve extends downward through the wall, not as far as the auriculoventricular node or presumably the bundle of His, but it might very possibly exert some pressure on it.

As for the rest of the necropsy, there was chronic passive congestion of all the organs, a moderate degree of anasarca with a small amount of fluid in chest cavity and abdomen. There was an old healed tuberculosis of the lungs, and the remainder was negative.

A STUDENT: Could you say that the valve lesion had any connection with his influenza attacks?

DR. MALLORY: I do not believe so. The appearance of that valve certainly suggests that the lesion dates back to childhood, as was suggested in the history.

A STUDENT: How do you explain the small pulse pressure?

DR. CABOT: I should say it was evidence that there was not much regurgitation. The valve orifice is very small, and my guess would be that there was much more obstruction than there was regurgitation. Dr. Mallory did not mean to indicate the amount of regurgitation. Of course the valve could not close. In syphilitic aortitis when the valve is practically out of the aorta altogether we have a stream thicker than the thumb coming back. Here it could not be much bigger than a knitting needle.

A STUDENT: Would digitalis therapy be of any value in this case?

DR. CABOT: Yes. I do not think we know any kind of heart disease in which digitalis may not do good. In any type one can name, anyone who has had experience will say that he has seen improvement under digitalis. It is perfectly possible that if he had had it earlier it might have done good.

A STUDENT: Do you think the scarlet fever and tonsillitis that he had in boyhood were factors?

DR. CABOT: That is a speculative question. My guess is that they were not—they are so tremendously common, and this disease is not. They would tend to affect the mitral valve more than the aortic.

The question is asked whether there is any fibrosis in the papillary muscles of the left ventricle. It is a little whiter than it often is.

DR. MALLORY: I didn't notice any.

DR. CABOT: I am very much interested in Dr. Mallory's suggestion that this might be a calcified endocarditis, because in a recent review

of all the cases of aortic stenosis in this hospital for the last twenty years, several of them distinctly suggested to me that the etiology was a calcified bacterial endocarditis on the aortic valve alone, even though it had all died out before we saw the heart. This is rather a mystery. We know a good deal of the cases of the mitral valve and of the ordinary free regurgitation at the aorta. But this particular thing is queer in a number of respects, and that suggestion interests me very much.

CASE 12452

HEADACHE AND DROWSINESS

MEDICAL DEPARTMENT

A Scotch gas fitter thirty-one years old entered October 4 complaining of headache and weakness of two weeks' duration. The history was given by his wife and sister.

He was perfectly well until six months before admission, when he contracted a cold which had persisted without change all summer in spite of sea bathing. Soon after the onset of the cold he found he could not breathe through the right nostril. Two weeks before admission he began to have severe pain over the right eye. A physician syringed his nose, bringing away a large amount of pus. This was done three times a day for the next four days with only transient relief. Ten days before admission the pain became so agonizing that he stopped work. The following day he visited the Out-Patient Department. Examination showed the mucosa of the right naris red and swollen. Transillumination showed both sides dull. X-ray at the Eye and Ear Infirmary showed pus in both antra. Five days before admission he had two attacks of vomiting, not projectile. The same day he came to the Out-Patient Department, where both antra were washed, with production of much thick greenish pus, thicker on the left. The following day he found that his neck was sore. On attempting to walk he fell. His temperature was 102°. He grew steadily worse. The pain, which had been localized chiefly over the right eye, now involved the whole forehead.

His family and past history were good. He had always been well and strong. He gave a vague history of the removal of a piece of tissue from his nose ten years ago. He had appendectomy (?) also at that time. He was subject to head colds. He inhaled a good deal of illuminating gas at his work.

In the Emergency Ward the night before admission to the wards he was drowsy, but rational and coöperative. He gave then a history of left occipital pain and weakness of the left leg of a month's duration. For the latter his physician had prescribed an elastic stocking.

After three weeks the headaches became much more intense. Examination in the Emergency Ward showed slight exophthalmos and lid ptosis of the right eye, general apathy, profuse perspiration, exaggerated knee-jerks, the left a little greater than the right, positive ankle-jerks, no Babinski or ankle clonus, left hypotonus (arm and leg) with complete loss of voluntary power in the left leg, no spasticity, slight ataxia in left finger-to-nose test, marked stiffness and retraction of the neck, slight opisthotonos. Both discs showed some venous engorgement, no choking. Lumbar puncture was done. 15 cubic centimeters of turbid fluid was withdrawn, dynamics not done, cell count 1130, 89 per cent. polymorphonuclears, 11 per cent. lymphocytes, alcohol positive, ammonium sulphate strongly positive, Wassermann negative, total protein 46, goldsol 0012210000, sugar 91, chloride 720, fibrin clot. Two cultures showed no growth.

Examination October 4 showed a well nourished man, comatose, sweating profusely. The pupils were dilated (atropin). There was ptosis of the right eyelid. The neck was very stiff and slightly retracted. The heart was negative except for transient trigeminal rhythm. The lungs, abdomen and rectal examination were negative. The left knee-jerk and ankle jerk were greater than the right. There was positive Kernig on the right, none on the left. There was no clonus or Babinski.

Another lumbar puncture October 4 gave faintly cloudy fluid, neither bloody nor xanthochromic, pressure markedly elevated, initial pressure 470. Individual jugular compression had no great effect on the pressure. Bilateral jugular compression caused a slow rise to 610 and a slow fall to 460. Pressure after withdrawal of the first five cubic centimeters 330, after the second five cubic centimeters 240, final pressure after withdrawal of twenty-five cubic centimeters 140. Alcohol normal and ammonium sulphate positive after centrifuging. Total cell count 350, polymorphonuclears 87 per cent., lymphocytes 12 per cent., large mononuclears 1 per cent.; no organisms seen. Sugar 91, chloride 717, total protein 46, goldsol 1112200000, Wassermann negative. Two cultures contaminated, one no growth. Two blood cultures showed no growth.

The urine showed a very large trace of albumin and three to five leucocytes, mostly lymphocytes, per high power field. The blood showed 32,000 to 37,000 leucocytes, 89 per cent. polymorphonuclears, hemoglobin 70 to 80 per cent., 4,640,000 reds, smear normal.

Before operation the temperature was 101.1° to 106.5° by rectum, the pulse 81 to 128, the respiration 31 to 40.

A neurologist was asked for an opinion. He gave none, but suggested drainage, cistern and

lumbar punctures and irrigation with normal saline.

October 4 examination by a neurosurgeon showed slight ataxia and some hypotonia of the left arm and leg. A general surgeon pointed out redness and pitting edema of the right scalp in the frontal region. A laryngologist advised against operation without more localizing symptoms. The patient grew rapidly worse.

October 5 operation was done. That day the patient was cyanotic and breathed with difficulty—moribund. A cistern puncture gave fluid exactly similar to the lumbar fluid—cloudy, with many polymorphonuclears, fibrin clot, sugar 91, protein 45. The temperature rose to 107.7°, the pulse to 157, the respiration to 60. Twelve hours after the operation the patient died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

From six months ago to two weeks ago there was nothing except a cold, which none of us would think much of, involving obstruction of one nostril. So that until within two weeks there was nothing to give oneself any concern about.

I suppose at this stage of the game they probably thought he had an inflamed antrum and sinus. He had been having coryza and headache and they attributed the pain over his eye to the same cause.

I rather doubt whether the X-ray men would put it just this way. They would probably say it showed dullness in both antra. I do not know that there is any way of distinguishing pus in the antrum by X-ray from any other cause of dullness.

What we suspect of course here is that a process starting in the nose, spreading to the antra on each side and to the sinuses, has in some way worked up, perhaps through the ethmoid, which probably was involved at the same time, to the brain. The soreness of the neck, which may later become stiffness, and the extension of the headache certainly makes us fear meningitis.

The family and past history are of no importance, I should say.

In the Emergency Ward we hear for the first time of pain in the occipital region. I suppose they were asking him about brain symptoms at this time.

DR. JACOB FINE: He volunteered the statement about his leg.

NOTES ON THE PHYSICAL EXAMINATION

Certainly after the first examination we should go on to a lumbar puncture because of the marked suggestions of meningitis, and we expect either pus or a cloudy fluid in the puncture.

This is practically a thin pus. The sugar is rather high. Do you know whether there was a cover-glass specimen made of that?

DR. FINE: Yes. Nothing was found.

DR. CABOT: Sometimes we get organisms in cover-glass when we cannot get them in cultures. But here apparently they could see none either way.

The second puncture was done on the following day. The total cell count was a good deal lower, but still pretty high.

I suppose the operation was an attempt to wash out through the cistern.

DR. FINE: No, it was an attempt to explore for a cerebral abscess.

DR. CABOT: Of course we have a certain number of localizing symptoms here which perhaps should have suggested to me more strongly than they did an abscess on top of meningitis. We have proof of meningitis in his lumbar fluid and we have a certain number of localizing symptoms, as we do fairly often however in meningitis.

DR. FINE: The operation was done under local anesthesia. A T incision was made over the region of the right frontal bone. When the trephine was made through the bone pus could be seen exuding from the diploe, and after the drill had gone through the bone about five cubic centimeters of thick green pus issued before the dura was opened. The area exposed was about the size of a half dollar. The dura was opened, a spoon inserted and a large amount of thick green pus issued, chiefly from along the sides of the skull. Two drains were inserted at the base of the skull, the wound was closed and the patient sent back to the ward. The brain itself was not probed.

DR. CABOT: How much of the brain could you see?

DR. FINE: We could see as much brain as the bone exposed and what the spoon allowed us to see under the margins.

DR. CABOT: Could you see the surface of the brain, apart from this abscess?

DR. FINE: The cortex looked normal.

DR. CABOT: So the evidence is of a local process without a general meningitis, though communicating with the spinal canal.

DIFFERENTIAL DIAGNOSIS

The question is what besides the effect of brain suppuration, which we know, and meningitis, which we know so far as the spinal canal is affected. He evidently had at one time pus in each antrum, very possibly has it still at the time of necropsy. As to the source of this abscess, I should think there was every reason to suppose it came by extension and not, as most brain abscesses do, by metastasis. We have no reason to suppose that it came from his lung or anywhere else. So that I do not see any good

reason for suggesting that the lung or the heart or the gastro-intestinal tract or any other part of the body will show disease. On the basis of our facts I do not see that we can go outside the nervous system, and practically speaking, not outside the brain and cord.

A PHYSICIAN: Is this septicemia?

DR. CABOT: It may be. We did not get organisms in the blood, but it is quite possible that he had a septicemia. So the diagnosis is chiefly that supplied us by the account of the operation,—brain abscess.

DR. FINE: I might add that there was a good deal of discussion as to whether this man should be operated upon. Before he was admitted to the ward it was put to the neurosurgical department. The case was refused because of the evidence in the cerebrospinal fluid that he probably had meningitis. But when examined it was found that the fluid was of an aseptic character and not a septic one, so that the advisability of operation seemed more proper.

DR. CABOT: You know there are a good many cases of epidemic meningitis in which we do not find organisms. I guess all meningitis is septic. The question is whether we find organisms in life or do not. In ordinary meningococcus meningitis we usually do find organisms. But in every large series of cases there are ten or fifteen per cent. where we do not. I do not see anything to distinguish this case except the previous history.

DR. FINE: It was distinguished on the basis of the chemical findings. Sugar 91 is a very unusual thing to find. The sugar in meningitis is usually below normal. This is above. These findings have been characteristic of brain abscess in every case in which there has been no concomitant bacterial invasion of the meninges.

DR. CABOT: That is a point I am glad to have brought out. That is, that the sepsis of brain abscess does not affect the sugar in the spinal fluid in the way the sepsis of the ordinary meningitis does. That is the fact you are bringing out, and it seems to me one of importance which I did not know.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Brain abscess.
Meningitis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Brain abscess.
Meningitis.

ANATOMIC DIAGNOSES

Pneumococcal meningitis localized to the right hemisphere.
Right maxillary sinusitis.

DR. MALLORY: The necropsy in this case was limited to the head. We were able to find no

brain abscess. As the dura was opened the right hemisphere was found to be covered with a thick layer of green pus, averaging two to three millimeters in thickness. Considerable quantities more had collected along the base of the cranial cavity. It was very sharply walled off by the falx. On the left side of the brain there was congestion and edema of the pia but no pus whatever, and beneath the tentorium no pus. The fluid here was turbid, but very different in appearance from the localized meningitis over the right hemisphere. The ventricles were slightly dilated and contained turbid fluid similar to that found beneath the tentorium. The brain was sectioned at intervals of three to four millimeters throughout, and no abscess was found.

Removal of the periosteum from the internal surface of the cranium showed no abnormalities of the bone except at the site of operation. The middle ears and mastoids were negative, and the sphenoidal, ethmoidal and frontal cells were all negative. A drill hole passed into the right maxillary antrum through the mouth showed a small amount of turbid fluid from which pneumococci among other organisms grew in culture. But that is rather to be expected in view of his history.

Smears from the pus on the meninges showed small numbers of Gram-positive cocci in pairs and short chains, running up to five or six, with a suggestion of capsule about them. The cultures and bile solubility test proved them to be pneumococci.

So that as far as we could tell at the end it seemed to be a pyogenic meningitis sharply localized to one portion of the meninges, that is the portion over the right hemisphere. The reaction in the remainder was an irritative one, without the actual presence of bacteria except in this localized area.

DR. CABOT: You suppose the starting point was in the respiratory tract, as we did from the history?

DR. MALLORY: I should think so. I do not know exactly how one could get direct extension from a maxillary antrum without involvement of the other sinuses.

DR. CABOT: Was there anything in the ethmoid?

DR. MALLORY: No.

DR. CABOT: I suppose it might have gone through and finished up its process there.

DR. YOUNG: Isn't there some argument in favor of a blood-borne infection,—that he had the trouble clinically and we cannot find any trace of the trouble?

DR. MALLORY: It suggests it, and also the fact that even his antrum was nearly cleared up at the time of the post-mortem examination.

CASE 12453

AN ABDOMINAL EMERGENCY WITH
PAIN IN THE LEG

SURGICAL DEPARTMENT

An American night watchman seventy-three years old entered through the Emergency Ward October 3 for relief of pain in the abdomen and the left leg.

Ten years before admission a left scrotal hernia developed. He always had pain when this was down. He said it was down at present. During the past three months he had not felt so well as usual and had lost ten pounds. A week before admission he vomited after breakfast. His bowels moved for the last time five days before admission. No gas had passed since that time. During the week he had had nausea. He had taken nothing by mouth, and had vomited about six times. He had had attacks of moderately severe cramp-like pain at night. Two days before admission he stopped work.

At ten o'clock the morning of admission he began to have pain in the left leg while an enema was being given. This had been more severe than the abdominal pain. The leg was now without sensation. He had had several doses of morphia, was extremely drowsy, and kept dropping asleep. He frequently contradicted himself. The history is not reliable.

Examination showed a thin, sick-looking old man. The teeth were carious. There was pyorrhea. The chest was barrel shaped. The right lung seemed to be duller than the left, but there were a few coarse râles at both bases. The apex impulse of the heart was felt in the fifth space one centimeter outside the nipple line. The radial arteries were slightly thickened. The heart was otherwise normal. The blood pressure was 110/80. The abdomen was markedly distended. The liver dullness was obliterated except in the axillary line. Rectal examination showed the prostate enlarged, firm, regular and elastic. The left leg from the knee down was colder than the right. The popliteal artery was felt on the left, but there was no pulsation below this level. The arteries on the right were normal. The left foot and lower leg were blue. There was no sensation from the foot to four inches below the knee. The veins were prominent. There was no motion in the toes. In the left scrotum there was a soft tumor the size of an egg, which transmitted light. The ring was not large. The cord was not thickened. There was no impulse. The pupils were contracted, irregular, and did not react normally. The knee-jerks were normal.

The urine was negative. The leucocyte count was 16,000.

The temperature was 101.8° to 100.5°, the pulse 90 to 120, the respiration 21 to 35.

The patient was given a subpectoral. October 4 operation was done. That afternoon he died.

DISCUSSION

BY EDWARD L. YOUNG, JR., M.D.

I think this statement about gas is important if it can be established on a basis that we consider accurate. Severe constipation can last five days or longer without there being anything more serious than constipation, but during that time gas can be passed. If gas can not pass it means something more important.

Apparently his trouble was not very severe during the first part of this attack, not more severe than constipation might be.

At seventy-three this blood pressure is much lower than we should expect, and probably goes with his poor general condition.

The condition in the left leg and foot shows venous obstruction as well as arterial obliteration.

It is of interest that the tumor transmitted light. Since I read this over this noon I have asked two other surgeons if a serotal hernia ever transmits light. One of them said "Never". The other said, "Theoretically a distended bowel in a serotal hernia with no fecal contents can transmit light". According to the textbooks that is a distinction between hydrocele and hernia, but the suggestion in the history that there is pain when this is down is of course absolutely characteristic. Nothing but a hernia will quickly "go back" when the patient lies down. This report does not say whether that was sensitive or not. Of course we are thinking of intestinal obstruction, and whenever a hernia is mentioned which is down at the time of admission the question of strangulation is thought of first. Strangulated hernia is always sensitive. It may have been incarcerated three or four days ago and strangulated only within the last few hours.

This man is sick, and the prognosis of course is bad anyway we put it, regardless of what the whole diagnosis may be, because he has extensive arteriosclerosis, he has beginning gangrene of the left lower leg due to obliteration of the blood supply, presumably thrombosis or embolus; it came on suddenly enough so that it might have been the latter. He has been losing a little weight. He has not felt well for three months. He may have a background of carcinoma which has shut down a little slowly in the last six days. The hernia may have become incarcerated and now be strangulated, and yet the examination as given here is not the description of a strangulated serotal hernia. That should be tense, tender, and with the edema and the exudate in it should not transmit light, because there would be a bloody exudate in the loop. It

would not be entirely gas-filled. I cannot explain the discrepancy between the very definite story of hernia and the examination which is given us. There was apparently some doubt in the minds of those who saw him October 3 about either the diagnosis or the advisability of doing anything at all. He should have had and I presume did have a skillful attempt to get something through by means of enemas. All of the cases that come here suggesting intestinal obstruction, unless the patient is so obviously sick and obstructed that we go in without further ado, have an attempt made to get something through, and often the patient is cured by such methods.

MISS PAINTER: There is no mention of enemas in the orders.

DR. YOUNG: It is very often a different impression that we get when we see a patient from what we get when we hear or read about him. As I read this it seems to me the only logical thing is to open the abdomen at once under local anesthesia and see where the obstruction is. It may be a hernia, it may be a carcinoma.

DR. CABOT: Wouldn't you say something about that leg in its connection with the abdomen? Might not the intestinal obstruction and the leg obstruction be due to a common cause?

DR. YOUNG: It is hard to believe that the growth in the abdomen could have progressed far enough to hit both of those without giving us more evidence of it. It is possible. I cannot quite put those two together.

DR. CABOT: Wouldn't you have to consider mesenteric embolism as a cause of obstruction, and arterial embolism as a cause of his leg?

DR. YOUNG: Why should they be connected?

DR. CABOT: If emboli are being thrown around they might go to both arteries. That leaves the hernia out altogether, but a man with a hernia might have something else too.

DR. YOUNG: I suppose that the operation is going to be exploratory for intestinal obstruction.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Acute intestinal obstruction.

PRE-OPERATIVE DIAGNOSIS

Acute intestinal obstruction.

OPERATION

Novocain. Right rectus incision. Dilated coils of small intestine were encountered. There were numerous firm adhesions between the coils. The cecum was located and the ileum was found collapsed for a length of about eighteen inches. At this point a hard band was encountered. No attempt was made to free this. A loop of dilated intestine was selected and a catheter introduced and held in place by three layers of purse string sutures.

FURTHER DISCUSSION

It probably was technically impossible to cut the band. If that is at the point where a Meckel's diverticulum comes off it might have been a remnant of that structure. Apparently he did not have a strangulated hernia.

I think we have nothing more except to let Dr. Mallory tell us the exact condition present. Perhaps he will tell us there was cancer. I am not sure.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Intestinal obstruction.
Intestinal adhesions.
Carcinoma of the colon?
Embolism of popliteal artery, left.
Ileostomy for intestinal obstruction.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Acute intestinal obstruction due to a band.

ANATOMIC DIAGNOSES

Primary fatal lesion.

Old adhesive peritonitis.

Secondary or terminal lesions.

Acute general peritonitis.
Arteriosclerosis.
Chronic fibrous myocarditis.

Historical landmarks.

Ileostomy.
Left inguinal hernia.
Hydrocele.
Hypertrophy of the bladder.
Diverticulitis of the bladder.

DR. MALLORY: The peritoneal cavity in this case showed very widespread old fibrous adhesions scattered throughout the abdomen, so that various loops of intestine were firmly tied to one another, and at one spot there was a quite thick and definite band which spread across the ileum and obstructed it to about one-third of its normal diameter. The gastroenterostomy had been done just above this point. Below it the intestines were collapsed and free of fecal material; above it they were widely dilated. The peritoneal surfaces showed in places just the beginning fibrinous exudate of a very early general peritonitis.

The patient did have a hernia on the left side. It was apparently a hernia of the sigmoid which slid down through the internal ring; the mesentery of the sigmoid was adherent in the serotum. He also had a hydrocele, which perhaps is the transparent mass.

DR. YOUNG: I am no better off than I was before.

DR. MALLORY: He had a fairly marked but not tremendous degree of arteriosclerosis. It showed up in his coronaries and in the aorta. Otherwise the heart was essentially negative. The femoral artery showed about half-way between the hip and the knee an embolus which completely obstructed it. We were unable to find any source for the embolus in the heart. The foramen ovale was closed, so it could not have come from the venous system, and the heart was entirely free from thrombi.

DR. YOUNG: So far as you could tell, was the venous system in the leg free?

DR. MALLORY: I did not examine that post mortem. The leg did not appear discolored. It was slightly edematous but pale, so there was nothing to call attention to the veins, and we did not open them.

DR. YOUNG: Does the history say anything of a previous operation?

MISS PAINTER: Nothing whatever.

DR. YOUNG: That is always important when the question of obstruction comes up. Because we always assume, in the presence of previous abdominal operation, that an obstruction is connected with it.

I think this case brings up a point which Dr. Cabot has often brought out,—that is, that every effort should be made to get a complete and intelligent history. Of course we could not here, but if a complete and intelligent history is given it is of more importance than the physical examination in most cases.

CHRISTMAS SEALS

SIXTY-FIVE MILLION Christmas Seals, an amount in excess of previous years by six million, have arrived in Massachusetts to supply the demand for 1926! Dr. Edward O. Otis, Honorary President of the Massachusetts Tuberculosis League, stated after consulting with representatives of the League in different parts of the Commonwealth, that he is satisfied the 1926 Christmas Seal Sale will eclipse those held in previous years.

Organization meetings have been held in Springfield for the Western Counties of the State and at Boston for Eastern Massachusetts. Frank Kiernan, Executive Secretary of the League, is receiving daily requests for additional Seal Sale material. An army of volunteer workers of between three and four thousand is being recruited for the campaign which will open Thanksgiving Day.

The League is shipping out daily to the twenty-seven affiliated organizations, which extend from Berkshire County to Nantucket, their allotments of seals and supplies for the 19th Annual Christmas Seal Sale conducted in the Commonwealth of Massachusetts.

THE BOSTON Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the
jurisdiction of the following-named committee:

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SUBSCRIPTION TERMS: \$5.00 per year in advance, postage paid
for the United States; \$7.50 per year for all foreign countries
belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office, 126 Massachusetts Ave.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The Boston Medical
and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THE SCHOOL OF MEDICINE AT THE UNIVERSITY OF ROCHESTER

In the past twenty years there has been a heavy mortality among medical schools in the United States and in the same period the birth rate has been very low. The opening of a new school of medicine is, therefore, an event to arouse curiosity, and the circumstances attending the establishment of the School of Medicine and Dentistry of the University of Rochester are of especial interest. The School was made possible by the gifts of Mr. George Eastman and the General Education Board, and the University Hospital, known as the Strong Memorial Hospital, was given by Mrs. Gertrude Strong Achilles and Mrs. Helen Strong Carter, as a memorial to their parents.

It was founded in 1920, the first students were admitted in September, 1925, and the first patient was received in January, 1926. On October 25 and 26, a Scientific Conference was held to commemorate the formal opening of the School of Medicine and Dentistry.

At the public meeting in the Eastman Theatre President Rhees conferred on Friedrich von Meidler of Munich and on Andrew Balfour of

London, the honorary degree of Doctor of Science.

Following the conferring of degrees, Dr. John C. Merriam, President of the Carnegie Institution of Washington, delivered an address on "Medicine and the Evolution of Society." The later meetings of the conference were held at the Medical School and Hospital and included dedicatory exercises of the Strong Memorial Hospital.

The five scientific papers represented noteworthy contributions to fundamental problems and were by: Ludwig Hektoen on "Recent Investigations in Scarlet Fever, Measles and Tuberculosis"; Joseph Erlanger on "Analysis of the Action Current of the Nerve"; Friedrich von Mueller on "The General Pathology of Joint Diseases"; Theobald Smith on "Immunity, Natural and Acquired as Illustrated by Experiments with Bacilli coli and its Mutants"; and Lewis Hill Weed on "Problems of the Relation of the Muscle and Nerve."

The first surgical clinic was given by Harvey Cushing on Acromegaly and the first medical clinic by Friedrich von Mueller on Huntington's Chorea. The conference was closed with an address by Andrew Balfour, "Through the Maze of Medicine": scholarly, felicitous, sane, distinguished.

It was a notable gathering and the catholicity and distinction of the guests of honor who participated in the conference found an appropriate setting in the enthusiasm and fine spirit of devotion to high ideals in the science and art of medicine in this youngest of medical schools.

The plant is of extreme simplicity, but well built and fully equipped, representing the latest ideas in hospital and medical school construction with very intimate contact between the two institutions. From the purely educational point of view, and with no derogatory implications, the hospital is one of the laboratories of the medical school, and, from the point of view of the hospital, the medical school is one of the means by which the patient is given the best chance for restoration to health.

The school represents no radical new departure in medical education. However, the standards for admission, and the course for the first and second years are the same for the students of dentistry as for the students of medicine. But regarding the principles of medical education now generally accepted as sound, it will not have to overcome the heavy burden of traditional practice found in most well established schools, and will be free to train practitioners of medicine and dentistry in the best possible way. Four years in the school represent but the beginning of professional education, and a thorough grounding in the science of medicine, gives the basis for a life long growth in the art. The tendency toward elasticity in the curriculum

lum and diminution of emphasis on the specialties is found in Rochester as elsewhere.

The hospital represents an experiment that will be watched by municipalities and medical schools with great interest. The new municipal hospital of two hundred and thirty beds is attached by corridors on every floor to the University hospital and will be administered as part of it. By avoiding duplication in service plants there will be effected annually very considerable saving, which is an effective argument with tax payers. An increase by 230 beds in the clinical facilities of the school is obtained without a staggering cost. If this experiment can be worked out successfully, other municipalities having medical schools within their borders may well give it their attention. Another interesting feature at Rochester is the intimate association of the municipal board of health with the school, an example of what it may be hoped will become a common practice in the future.

THE SEMI CENTENNIAL AT JOHNS HOPKINS

RECENTLY there occurred in Baltimore, Maryland, an event of some significance for medical as well as for general education. On the morning of October 22, there were held exercises commemorating the opening of the new building of the School of Hygiene and Public Health of Johns Hopkins University. Introductory remarks were made by Dr. William H. Welch, Director of the School of Hygiene, who presented for the degree of Doctor of Laws, Dr. Andrew Balfour. Following the confirming of the degree by President Goodnow, Dr. Balfour, Director of the School of Hygiene and Tropical Medicine, London, gave a notable address on "Hygiene as a World Force."

Departmental conferences were held in the afternoon at the University. Across the city, opportunity was given to inspect the Hospital, and its new buildings; the School of Medicine, the School of Hygiene, the Carnegie Embryological Institute and the Institute for Biological Research. At the close of the afternoon celebration, Professor F. Neufeld, Director, Institute for Infectious Diseases, Berlin, gave the DeLamar Lecture, on "Variability with Especial Reference to Infectious Diseases."

On Saturday, October 23, there were held exercises commemorating the Fiftieth Anniversary of the Inauguration of the Philosophical Faculty. First were greetings to Ira Remsen, Professor of Chemistry 1876-1913, and President 1901-1913. After receiving the degree of Doctor of Laws, Dr. L. Levy-Bruhl, Professor of the History of Modern Philosophy at the Sorbonne and the Ecole Libre des Sciences Politiques, Paris, delivered an address on "Research as it is Today."

In the afternoon the exercises were continued

at Homewood, the site of the University, and the celebration closed with a banquet in the evening attended by twelve hundred alumni. The Theme was "Johns Hopkins 1926-1976," and the speakers introduced by Newton D. Baker, A. B. '92, were Daniel Willard, President of the Board of Trustees, Frank J. Goodnow, LL.D., President of the University, Edwin G. Conklin, Ph.D. '91, Gordon J. Laing, Ph.D. '96, and Charles R. Bardeen, M.D. '97.

It is timely to consider the significance of Johns Hopkins University from at least one point of view. Its characteristic is that it is essentially experimental. Its founding was an experiment in university education, representing a marked departure from the lines along which higher education was proceeding in this country in 1876.

The opening of the Hospital in 1889 and the Medical School in 1893 represent a second noteworthy experiment. The opening of the School of Hygiene and Public Health in 1918, separate from yet closely connected with the School of Medicine, represented a new departure in Public Health Education. And now the University has decided, as the result of its short fifty years of experience, that it will again set itself with more complete devotion to the task which it undertook in the beginning, seeking after truth, and from its philosophical faculty will abolish what is generally known as the collegiate department. It is an experiment well worth trying, and the transition, though slow, has already begun.

It might be interesting to speculate concerning the effect on the other departments of the University on the Schools of Medicine and Engineering and Hygiene. Perhaps they also will become graduate schools devoted to research. But like most speculation it is unprofitable, for time alone can tell what the result will be.

However, the University has the interest and best wishes of all who are concerned with higher education in America and their confidence that, whatever the result, the experiment will be worked out with intelligence and patience and sincerity. "Veritas vos Liberabit" is still the motto of the University.

KOCH'S ASSOCIATE FAILS TO CURE CANCER

A FEW weeks ago when the JOURNAL commented briefly on the type of associates whom Koch the Cancer Curer had gathered about him, indignant letters were received from one of those associates and from Koch himself. It was suggested that the JOURNAL investigate before condemning, and in a recent issue (October 14), we explained to our readers that further investigation seemed unnecessary; enough evidence had accumulated to justify our original statements. The JOURNAL is now in receipt of

the following letter from a Fellow of the Massachusetts Medical Society, residing and practicing in a near-by city. We do not know that Koch's antitoxin was used in this case; we do know that Dr. Frederick Dugdale, of Boston, is a charter member of the Koch Cancer Foundation, organized in February, 1926. Truly, a cloud of witnesses is springing up!

"A patient (not of mine), a farmer by occupation, whom I first observed a few years ago while delivering produce at my home, appeared to be suffering from multiple tumor masses of the entire body and face. He had some medical treatment, and, as I was later informed, got little results. He then tried various cults without result. About two years ago he saw an advertisement in one of our local newspapers offering free examination and advice by the so-called specialist, Dr. Dugdale of Boston, who also has an office here. He consulted with him and a diagnosis of skin cancer given. Injections were advised and cure guaranteed. These were given at first weekly, later every other week, still later until this spring about every third week, the price per injection being fifty dollars. He was then started on injections every two to three months for which he was charged two hundred dollars per injection. No improvement was noticed, and, realizing the expense incurred, he became very gloomy and despondent, and committed suicide by shooting himself. He had paid a total sum of fifteen hundred dollars for these injections—plus two hundred dollars due from the last injection, he not having had enough money at the time—and he was to have received another injection the next day and to pay him a total of four hundred dollars.

"Does not this death seem unwarranted?

"It seems that something should be done to prevent a repetition of this type of case.

"I sincerely hope you will give this your consideration."

For the benefit of those readers who may have overlooked or forgotten a previous statement we will remind them that Dr. Dugdale, according to the *Journal of the American Medical Association*, was graduated in 1903 by the Baltimore Medical College. He was one of the disciples of the Abrams cult. Prior to that he advertised as a Boston specialist in "skin, blood and nervous diseases, rheumatism, neuralgia, neuritis, lumbago, sciatica, rheumatoid arthritis, gout, catarrh, epilepsy, goitre. Cancer, tumors, piles, fistula and rectal diseases without the knife. Eye, ear, nose, throat, stomach Consultation. Advice free."

In 1921 his name appeared as "President of the Allied Medical Association of America" (exposed in the *Journal of the American Medical Association*, July 5, 1919), and as one of the officers of the "Medical Society of the United States," which was originally created to organize fee-splitters but later became a "Society of Protest Against the Autocracy of the A. M. A." He was later Chairman of the Board of Trustees of the "American Association for Medico-Physical Research" (exposed by the A. M. A., Sept. 19, 1925).

It may also be remembered (Sept. 16, 1926)

that it was Dr. Dugdale who recently reported to the Health Department of Boston a case of tuberculosis, diagnosis having been made by the electronic method of Abrams. This diagnosis was later found by a competent examiner to be false, and the patient's name was removed from the lists.

The Commonwealth may continue to allow Dr. Dugdale to practice medicine, but at least let us know the methods by which he practices, and the type of practitioners with whom Dr. Koch associates.

THIS WEEK'S ISSUE

CONTAINS articles by the following authors:

FALLON, MICHAEL F., LL.D., M.D. Harvard Medical School 1887; F.A.C.S. Surgeon in chief of staff, St. Vincent Hospital, Worcester, Massachusetts. His subject is "Caesarean Section After Death of the Mother, Report of Two Cases." Page 929. Address: 390 Main Street, Worcester, Massachusetts.

CLIFFORD, STEWART H., M.D. Harvard Medical School 1925. At present House Officer, Massachusetts General Hospital. His subject is "Iodine Hypersensitization." Page 931. Address: Massachusetts General Hospital.

CLIFTON, H. C., B.S., M.D. University of Pennsylvania School of Medicine; F.A.C.S. Attending Surgeon, St. Frances Hospital, Hartford, Connecticut; Consultant, Manchester Memorial Hospital and Bristol Hospital. Address: 30 Farmington Avenue, Hartford, Conn. Associated with him is:

LIANDRY, BENEDICT B., M.D. Harvard Medical School 1920. Address: 30 Farmington Avenue, Hartford, Connecticut. Their paper is entitled "Acute Cholecystitis, Cholelithiasis and Acute Appendicitis in a Child Aged 11 Years." Page 932.

HUBER, EDWARD G. Detailed Record on Page 291, No. 6, Vol. 195. Continued article on "The Control of Communicable Diseases Prevalent in Massachusetts." Page 933. Address: War Department, Washington, D. C.

TOWLE, HARVEY P., A.B., M.D. Harvard Medical School 1892. Ex-President, American Dermatological Association; Ex-President, N. E. Dermatological Society; Consultant, Massachusetts General Hospital; Formerly, Professor of Dermatology, Dartmouth Medical School. His subject is "Progress in Dermatology." Page 943. Address: 453 Marlborough Street, Boston, Mass.

The Massachusetts Medical Society**MEMBERSHIP CHANGES**

FROM SEPTEMBER 1, 1926, TO NOVEMBER 1, 1926

NOTE:—The changes made by the Council, October 6, 1926, will be found in the JOURNAL of October 21; the deaths have appeared under Recent Deaths, in these columns, when reported. Fellows are requested to send in notices of removal for the Annual Directory of 1927, now in preparation.

WALTER L. BURRAGE, *Secretary.*

Apelian, George S., from Belmont (Middlesex South) to Chelsea (Suffolk). Office, Boston, 536 Tremont Street.

Appel, Bernard, from Dorchester (Norfolk) to Lynn (Essex South). Office, Boston, 485 Commonwealth Avenue.

Baker, Lewis F., from Fitchburg (Worcester North) to Fall River (Bristol South), Union Hospital.

Bakst, J. B., now Lawrence, 71 Bradford Street.

Banquer, J. E., has moved from Mattapan to Brookline. Office, Boston, 68 Bay State Road.

Barney, Azel P., Springfield, from 6 Maple to 49 School Street.

Benedict, E. B., from Cambridge to Chestnut Hill (Newton), 21 Essex Road.

Boyle, John F., Lowell, from 32 Whipple Street to 591 Andover Street.

Brewster, A. H., has moved from Brighton to Newton Center. Office, Boston, 234 Marlborough Street.

Buckley, James T., Worcester, is now at 8 Loudon Street.

Buckman, Thomas E., Jacksonville, Fla., from Laura Street to 2104 St. Johns Avenue.

Burnham, Elmond A., from Wellesley (Norfolk) to Laurel, Md. (Non-Resident List), 595 Washington Avenue.

Cook, Edward M., from Worcester (Worcester) to York Harbor, Me. (Non-Resident List).

Crowley, Thomas F., North Adams, now has his office at 111 Main Street.

Dechter, M. A., Westfield, has moved his office from 74 Court Street to 89 Elm Street.

Dexter, Roderick B., from Taunton (Bristol North) to Belmont (Middlesex South), 70 Oakley Road.

Flood, Everett, now has a residence in Friendship, Me., and an office at Augusta, Me., 12 Davenport Street. His winter residence is at Mt. Dora, Fla.

Glaser, William, has moved from Philadelphia (Non-Resident List) to Roxbury (Norfolk), 18 Intervale Street.

Hallbach, R. M., from Ocean Grove, N. J., to Pittsburg, Pa., South Side Hospital.

Hamilton, Burton E., Brookline, has moved his Boston office from 605 to 475 Commonwealth Avenue, Boston.

Hardwick, Rachel L., Quincy, now has an office in Boston, 20 Mt. Vernon Street.

Harriman, Frank E., Worcester, from 8 High Street to 36 Pleasant Street.

Hayden, John J., is now at 360 Grafton Street, Worcester.

Hodgkins, Edward M., Boston, from 56 to 12 Bay State Road.

Hooper, George H., from Tampico, Mexico (Non-Resident List), to Belmont (Middlesex South), 77 Trapelo Road.

Hussey, Earle E., Fall River, from Purchase Street to 38 Rock Street.

Inman, W. C., from Worcester (Worcester) to Lynn (Essex South), 21 Portland Street.

Jenkin, John T., has moved from Worcester (Worcester) to Shrub Oak, New York State (Non-Resident List).

Jessaman, L. W., Framingham, now has his office at 132 Union Avenue.

Johns, Juanita P., from Worcester (Worcester) to Philadelphia, Pa. (Non-Resident List), Care of Dean, Graduate School of Medicine.

Langlois, W. E., Worcester, now has his office at 60 Franklin Street.

Leland, Forrest L., South Hadley Falls, from 44 to 21 Bardwell Street.

Lussier, Joseph H., Springfield, now 3025 Main Street.

McCarty, Edward M., from Wollaston (Norfolk South) to Somerville (Middlesex South), 134 Highland Avenue.

Merrill, Charles H., from Lynn to Beverly, 37 Abbott Street.

Morrison, Lawrence R., from Hathorne, Danvers (Essex South) to Psychiatric Clinic, Wards Island, New York City (Non-Resident List).

Otis, Edward O., has changed his residence from Boston (Suffolk) to Exeter, N. H. (Non-Resident List), and his office from 381 Beacon Street to 475 Commonwealth Avenue, Boston.

Packard, Fabyan, from Tewksbury (Middlesex North) to Cambridge (Middlesex South), Harvard Graduate School of Business Administration.

Parker, George L., from Northampton (Hampshire) to Philadelphia, Pa. (Non-Resident List), 3729 Locust Street.

Paul, Frederick H., Jr., West Newton, from 44 Eddy Street to 17 Elliot Avenue.

Pitcher, Hervey Brackett, Fitchburg, 72 Fox Street, restored by Council, October 6, 1926.

Rood, Adolphus D., from Springfield to Longmeadow, Office, Springfield, 146 Chestnut Street.

Ross, Margaret B., Holyoke, from West Hampden Street to 131 Chestnut Street.

Rubin, Solomon H., Roxbury, now has his office at 45 Bay State Road, Boston.

Smith, Edwin Eugene, Wollaston, has moved his office from Hancock Street to 39 Elm Avenue.

Spitz, Jacob, from Suffolk to Norfolk, residence Mattapan. Office, Boston, 491 Commonwealth Avenue.

Sporn, Abram, from Springfield (Hampden) to Middletown, N. Y. (Non-Resident List), State Hospital.

Steinberg, N., Dorchester, now has a Boston office at 485 Commonwealth Avenue.

Sullivan, Joseph C., Webster, from Church Street to 18 Negus Street.

Sweeney, B. P., Leominster, from 30 Water Street to 5 Gardner Place.

Thorne, Fred S., from Brookline (Norfolk) to Newton (Middlesex South). Office, Boston, 270 Commonwealth Avenue.

Walte, Anna Jeannette, now Gillam, Anna J., from Worcester (Worcester) to Cleveland, Ohio, 1603 Winton Avenue, Lakewood.

Welch, Margaret D., from Beverly to Salem, 14 Savoy Road.

MISCELLANY**A SUCCESSFUL BUSINESS**

AN undeniably successful venture in public service is the Christmas seal sale which is held annually throughout the country, and which is again before us. Like all big business enterprises, its growth is due to the commonly prescribed rules for success; namely, vision, hard work, thrift, and giving the public what it wants.

Within twenty years this undertaking, which is the chief support of the national, state and

local tuberculosis associations of the United States, has developed from a \$3,000 business to one whose gross receipts in 1925 were approximately \$4,900,000. From a tiny hospital for tuberculous patients in Delaware which was financed by the first \$3,000 in 1907, it has become the means for creating a network of sanatoria, hospitals, open air schools, clinics, and other public health activities that protect the American people against what was once known as the Great White Plague.

According to the National Tuberculosis Association, the mother of this gigantic movement, the Christmas seal sale finances approximately 1500 state and local organizations besides the National Association. The united efforts of these have resulted in the establishment of 700 sanatoria and hospitals, with nearly 70,000 beds for tuberculosis patients; more than 1000 open air schools; nearly 12,000 public health nurses; and over 600 clinics. In addition, children's camps and preventoria, nutrition classes and numerous special campaigns such as Baby Weeks, Anti-Spitting and Open Window campaigns are made possible by these little penny stickers.

All but 5% of seal sale money is spent in the communities where it is raised. The 5% goes to the National body which acts as a clearing house for information, supplies, leadership, research and expert service for its affiliated organizations, and for the other allied institutions and agencies.

Altogether, the record of the tuberculosis Christmas seal inspires the confidence and continued patronage of its millions of supporters.

THE CHRISTMAS SEALS IN NEW HAMPSHIRE

CHRISTMAS Seals are rapidly stamping out Tuberculosis in the old Granite State. Here are the facts and figures of the growth and development and results achieved on the last seven years' intensive struggle financed by the Christmas Seals.

TUBERCULOSIS CLINIC CENTERS

Early in 1920 there were but three Centers for early diagnosis and treatment in the state. Today there are 67 centers reaching every section of the state bringing facilities for early diagnosis and expert treatment to every resident of New Hampshire. The number of clinics has increased rapidly each year from 119 in 1920 to 261 in the period Sept., 1925, to Sept., 1926. Over 22,000 men, women and children have been examined in these Clinic Centers since 1920. The Executive Secretary of the Tuberculosis Association, the Superintendents of the State Sanatorium, and 14 other physicians have carried on this great work of examining and advising in the clinics.

TUBERCULOSIS NURSES

At the beginning of 1920 there was but one full time tuberculosis nurse engaged in the work of searching out tuberculosis cases in New Hampshire. Today there are 10 tuberculosis nurses carrying on the great work of finding cases and follow-up service in each and every county of New Hampshire. Since 1920 twenty-eight nurses have labored at various times in the field. Five of the pioneer tuberculosis nurses are now engaged in the work. An average of 20,000 visits are made by tuberculosis nurses each year to the homes.

TUBERCULOSIS BEDS IN HOSPITALS

In 1920 there were but 113 beds for tuberculosis sufferers in New Hampshire. None of these were available for children. Today there are 208 beds and 30 are serving children with active lung tuberculosis. In addition a school has been provided for these children and a Normal School graduate is employed to teach them.

KNOWN TUBERCULOSIS CASES

At the end of 1920 less than 1,000 of the estimated 8,000 tuberculosis cases had been searched out and located. The great majority of these patients were in advanced stages of the disease.

In September, 1926, there were 3,802 KNOWN cases of tuberculosis and 1,531 suspicious cases located and under supervision and treatment. The great majority of these are in the early and curable stages of the disease.

TUBERCULOSIS DEATH RATE

In the ten-year period preceeding 1919 the tuberculosis death rate was stationary and even slightly on the increase with an average yearly rate of 120 per 100,000 population. The tuberculosis death rate ranked third highest in the census of death in N. H.

In 1925 the rate had been cut to 69 per 100,000 population and forced to the sixth place in the causes of death. This reduction has been persistent and rapid—a ten per cent reduction was gained in 1924—and five per cent in 1925.

A LIFE SAVING VICTORY

New Hampshire's 1919 tuberculosis death rate figures as compared with those of 1925, mean that in our state there are now living 577 men, women and children who would have died from tuberculosis if the 1919 death rate had not been checked.

This saving of lives can never be measured in dollars and cents because no one can measure happiness and the benefits of freedom from disease by any human yardstick. But if we should take the modest figures of \$5,000 per life merely for comparison we find that the stupendous sav-

ing to New Hampshire in six short years from this successful fight on a single disease has amounted to \$2,885,000 and this does not include the large sums of money saved from loss of wages, cost of prolonged invalidism, death, etc., to the sick and to their families.—*Bulletin New Hampshire State Board of Health.*

THE AWARD OF THE HENRY J. BIGELOW MEDAL

THE President of the Boston Surgical Society has suggested the propriety of deferring an account of the meeting at which the Bigelow Medal was conferred until the paper read by Dr. Matas is ready for publication.

TRAINING SCHOOLS FOR NURSES FOR 1925

APPROVED BY THE MASSACHUSETTS BOARD OF REGISTRATION

Addison Gilbert, Gloucester	General Stephen Henry Gale, Haverhill
Arlington Training School, Arlington	Goddard Hospital, Inc., Brockton
Beth Israel, Roxbury	Grafton State, North Grafton
Beverly Hospital Corporation, Beverly	Hale, Haverhill
Henry W. Bishop 3d Memorial, Pittsfield	Harley Private, Inc., Dorchester
Peter Bent Brigham, Boston	Hart Private, Inc., Roxbury
Boston City, Boston	Hillcrest, Pittsfield
Boylan Memorial, Pittsfield	Holyoke City, Holyoke
Brockton, Brockton	Anna Jaques, Newburyport
Burbank, Fitchburg	Jordan Hospital, Plymouth
Cambridge, 330 Mt. Auburn Street, Cambridge	Lawrence General, Lawrence
Cambridge City, Cambridge	Leominster, Leominster
Carney (female), South Boston	Long Island, Boston
Carney (male), South Boston	Lowell Corporation, Lowell
Charlesgate, Cambridge	Lowell General, Lowell
Chelsea Memorial, Chelsea	Lynn, Lynn
Chester, Inc., Cambridge	Malden, Malden
Charles Choate Memorial, Woburn	Massachusetts General, Boston
Children's Hospital, Boston	Massachusetts Homeopathic, Boston
Clinton Hospital Association, Clinton	Massachusetts Women's, Boston
Commonwealth Avenue Hospital, Boston	McLean (female), Waverley
Cooley-Dickinson, Northampton	McLean (male), Waverley
Danvers State, Hathorne	Melrose, Melrose
Essex Sanatorium, Middleton	Memorial, Worcester
Emerson, Jamaica Plain	Mercy, Springfield
Fall River General, Fall River	Milford, Milford
Farren Memorial, Montague City	Millers River, Winchendon
Faulkner, Jamaica Plain	Leonard Morse, Natick
Fenway, Boston	Morton, Taunton
Forest Hills (pending), Framingham	New England Baptist, Boston
Framingham, Framingham	New England Deaconess, Boston
Franklin County Public, Greenfield	New England Hospital for Women and Children, Roxbury
	New England Sanatorium and Hospital, Melrose
	Newton, Newton

Noble, Westfield	Josiah B. Thomas, Peabody
North Adams, North Adams	Taunton State, Taunton
Northampton State, Northampton	Truesdale, Fall River
Providence, Holyoke	Union, Fall River
Quincy City, Quincy	Union, Lynn
Rutland State Sanatorium, Rutland	Union Avenue Hospital, Inc., Framingham
Rutland State Sanatorium (male), Rutland	Waltham, Waltham
Salem, Salem	Wesson Memorial, Springfield
Somerville, Somerville	Westborough State, Westborough
Springfield, Springfield	Whidden Memorial, Everett
St. Elizabeth's Hospital, Brighton	Winchester, Winchester
St. John's Hospital, Lowell	Worcester City (female), Worcester
St. Luke's Hospital, New Bedford	Worcester City (male), Worcester
St. Margaret's Hospital, Dorchester	Worcester Hahnemann, Worcester
St. Vincent's Hospital, Worcester	Worcester State, Worcester
Sturdy Memorial, Attleboro	Massachusetts State Infirmary, Tewksbury
Symmes-Arlington, Arlington	

CORRESPONDENCE

WINTER TRAINING MEDICAL DEPARTMENT RESERVE OFFICERS

The second meeting of the Medical Department Reserve Officers of Boston and vicinity will be held at the Army and Navy Club rooms in the Hotel Bellevue, Beacon Street, Boston, Mass., on November 17, 1926, at 8 P. M., at which time the following program will be presented:

Subject I: Essential Paper Work, Officers' Pay and Mileage Vouchers (Par. 3, Chap. VII, Bull. No. 20), Captain H. N. Dean, M. A. C.

Subject II: Uniform and Other Personal Equipment—Constituents—Procurement—Care—Where and How Worn (AR 600-35, 600-40), Procedure of Reserve Officers on Receipt of Orders for Active Duty (Par. 4-b, Ch. VII, Bull. No. 20), Major H. S. Beckford, M. C., (DOL).

Subject III: Organization of the Army of the United States—Its Three Components and Their Functions—Organization and Administration of the Regular Army and the War Department (Sec. 1, AR 135-10, Ch. I, Bull. No. 20), Lieutenant Colonel P. C. Field, M. C.

Each paper will be open for discussion after it is presented.

C. F. MORSE, Lieutenant Colonel, Medical Corps,
Acting Corps Area Surgeon.

RECENT DEATHS

SHIELDS—Dr. ELLWOOD EMLEN SHIELDS died at his home in Annisquam, October 8, 1926, of valvular heart disease, at the age of 41.

Dr. Shields was born in Germantown, Philadelphia, Pa., June 3, 1885. He received his education in his native place, attending Germantown Academy and later the University of Pennsylvania, where he was graduated in 1910, when he received his M.D. While attending the academy he was a most enthusiastic athlete, playing on the football team, and was also made captain of the track relay team.

While in the University of Pennsylvania he was elected a member of the Kappa Sigma Fraternity, and at the Medical School became a member of the Alpha Kappa Kappa Fraternity. He was also a member of the Lambda Sigma.

After his graduation he served a year as a resident physician in the Cooper Hospital in Camden, N. J.

He was a member of the Massachusetts Medical Society and of the American Medical Society.

In 1911 he married Miss Gertrude D. Lane of Lowell and in 1913 they moved to the old Lane home in Annisquam. Later he opened an office in Gloucester and proved himself as popular and friendly with the people of Cape Ann as he was in his little home village.

While in Germantown, Dr. Shields was connected with the Trinity Lutheran Church, where his parents worshipped, and since coming to Annisquam he had been active in the welfare of the Village Church and was a member of the parish committee.

He was a member of the Gloucester Lodge, B. P. O. Elks, and of the Tyrian Lodge, William Ferson Royal Arch Chapter and Bethlehem Commandery of Masons. He was also an active member of the Leonard Club.

During the World War Dr. Shields received the commission of lieutenant in the Navy, although he was not called upon for active service.

He is survived by his wife, and by two children, Elizabeth Eleanor and Ellwood Emlen, Jr., by his parents, Mr. and Mrs. William G. Shields of Germantown, Pa., and two brothers, Dr. William G. Shields and Dr. Robert C. Shields, both also of Germantown.

CLARK—DR. LEONARD BROWN CLARK, long a practitioner in Waverley, died October 29, 1926, at his home in that town.

He was a native of Weston and had made his home in Waverley for 37 years. His parents were Samuel Clark and Louisa (Brown) Clark. He was 64 years of age, a graduate of Harvard in the class of 1885, receiving the degree of A.B. *magna cum laude*, and then took the course at the Medical School, receiving his M.D. in 1889. He was house officer at the Worcester City Hospital before taking up his residence in Waverley.

Dr. Clark was a member of the Massachusetts Medical Society, the Middlesex South District Medical Society, the Waltham Medical Association, a member of the board of trustees of the Waltham Hospital and of the Association of Boards of Health of Massachusetts, and chairman of the board of trustees of the Belmont Public Library. He also belonged to the Harvard Club of Boston, and was a member of the Masonic fraternity, the Odd Fellows and the Eastern Star.

His nearest survivors are cousins.

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING
OCTOBER 23, 1926

Diphtheria	26	Chickenpox	49
Last week	33	Encephalitis, epidemic	1
Diphtheria bacilli carriers	9	German measles	2
Scarlet fever	31	Mumps	1
Last week	23	Paratyphoid fever	1
Typhoid fever	4	Pneumonia, lobar	14
Last week	4	Poliomyelitis	1
Measles	20	Septic sore throat	2
Last week	10	Tuberculosis, pulmonary	27
Whooping cough	29	Gonorrhea	16
Last week	22	Syphilis	8
Bronchopneumonia	13		

MORBIDITY REPORT FOR THE WEEK ENDING
OCTOBER 30, 1926

Diphtheria	28	Last week	4
Last week	26	Scarlet fever	48
Diphtheria bacilli carriers	38	Last week	31
Typhoid fever	4	Measles	11
		Last week	20

Whooping cough	59	Mumps	8
Last week	29	Pneumonia, lobar	16
Bronchopneumonia	15	Poliomyelitis	4
Chickenpox	79	Septic sore throat	76*
Dysentery, bacillary	1	Tuberculosis, pulmonary	30
Encephalitis, epidemic	1	Gonorrhea	19
German measles	5	Syphilis	12
Influenza			
*Delayed reports.			

CASES REPORTED TO THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH FOR THE WEEK ENDING OCTOBER 30, 1926

Anterior poliomyelitis	6	Ophthalmia neonatorum	40
Chickenpox	180	Pellagra	1
Diphtheria	92	Pneumonia, lobar	58
Dog-bite requiring anti-rabic treatment	1	Scarlet fever	246
Encephalitis lethargica	2	Septic sore throat	4
Epidemic cerebrospinal meningitis	2	Suppurative conjunctivitis	6
German measles	8	Syphilis	31
Gonorrhea	108	Tuberculosis, pulmonary	91
Influenza	8	Tuberculosis, other forms	15
Measles	39	Tuberculosis, hilum	8
Mumps	73	Typhoid fever	13
		Whooping cough	97

NOTICES

SPECIALIST IN PATHOLOGY NEEDED AT KNOXVILLE, IOWA, HOSPITAL

THE United States Civil Service Commission states that there is a vacancy in a position of specialist in pathology at the Veterans' Bureau Hospital at Knoxville, Iowa, and that applications are being received for the position.

The entrance salary is \$3,800 a year. Promotion to higher grades may be made in accordance with the civil service rules.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C.

DR. BUELL L. ASHMORE has resigned the position of pathologist at the Grafton State Hospital, North Grafton, Massachusetts, to accept the position of clinical director at the Connecticut State Hospital, Middletown, Connecticut.

DR. W. W. JONES of Housatonic, Mass., has returned home and resumed his practice after spending some time in the hospitals of New York, Philadelphia, Pa., and Boston, where he has been pursuing some special studies.

DR. LEON S. MEDALLA has moved his office from 483 Beacon Street to 78 Bay State Road, Boston.

REPORTS AND NOTICES OF MEETINGS

THE SECOND ANNUAL MEETING OF THE TRUDEAU SOCIETY

THE second annual meeting of the Trudeau Society will be held on November 11, 1926, at

8.15 P. M., in John Ware Hall, The Medical Library, The Fenway, Boston, Mass.

The address will be by Dr. Richard C. Cabot, his subject being "Tuberculosis, From the Standpoint of Clinic and Autopsy."

The business of the evening will be the reports, and election of officers and the election of candidates for membership.

GEORGE S. HILL, *Secretary-Treasurer.*

SEMINAR ON MUSCULAR ACTIVITY

THE first of the series of lectures on "Muscular Activity" which are to be given on Tuesday and Thursday afternoons throughout November, was delivered by Dr. John F. Fulton, of Harvard Medical School, Tuesday afternoon, Nov. 2, at 4 P. M., in the Bowditch Library of Physiology and Biochemistry.

Dr. Fulton obtained his Doctor's Degree under Prof. Sherrington, eminent English Physiologist. He discussed primarily in his lecture the historical aspects of the subject.

Dr. Fulton's lecture is to be followed on the succeeding Tuesdays and Thursdays during November by lectures by Dr. F. H. Pratt of Boston University, Dr. A. C. Redfield, Mr. John Edsall, Dr. William Salter, Dr. Hallowell Davis and Dr. W. B. Castle, all of Harvard Medical School.

The program for the series of lectures to be given on Tuesday and Thursday afternoons throughout the coming winter is as follows:

January—Dr. W. B. Cannon—"Homeostatics."

February—Dr. E. J. Cohn—"Physical Chemistry of Physiological Processes."

April—Dr. W. T. Porter—"Lectures on the Growth of School Children."

All interested in the above lectures are invited.

THE HARVARD MEDICAL SOCIETY

THE next meeting of the Harvard Medical Society will be held in the Amphitheatre of the Peter Bent Brigham Hospital, Tuesday evening, Nov. 16, at 8:15 P. M. The speakers of the evening will be Dr. George Minot and Dr. William T. Murphy. The subject will be "Pernicious Anemia: Especially Remarks Concerning Treatment."

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE

THE annual meeting of the Massachusetts Society for Mental Hygiene this year is announced for Tuesday, November 16, at the Twentieth Century Club, 3 Joy Street, Boston.

As customary the business and social sections

of the meeting will be preceded by a luncheon at the same place. The luncheon will begin promptly at 1 o'clock. Luncheon tickets are \$1.50 each, and must be secured from this office not later than November 13.

Dr. Arthur H. Ruggles, *Consultor in Mental Hygiene, Yale University, and Superintendent, Butler Hospital, Providence, R. I.*, will speak on "The Mental Hygiene of the College Student."

Dr. V. V. Anderson, *Medical Research Director, R. H. Macy & Company, New York City*, will speak on "Psychiatry in Mercantile Life."

Members are urged to bring their friends to this luncheon-meeting.

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Essex South District Medical Society

Wednesday, December 1, 1926—Beverly Hospital, Clinic, 5 P. M.; supper 7 P. M. Dr. Jason Mixer, "Diagnosis and Treatment of Cerebral Lesions." Discussion by Drs. Randall and McDermott of Salem, ten minutes each.

Wednesday, January 5, 1927—Deer Cove Inn, Swampscott, Dr. James S. Stone, "Differential Diagnosis of Acute Abdominal Conditions in Children." Discussion by Drs. O'Keefe of Lynn, Nichols of Danvers and Walter Phippen of Salem, five minutes each.

Wednesday, February 2, 1927—Hawthorne Hotel, Salem, Dr. H. H. Cliby of the Lahey Clinic, "Differential Diagnosis and Treatment of Thyroid Disease." Discussion by Drs. Johnson of Beverly and Field of Salem, ten minutes each.

Wednesday, March 2, 1927—Lynn Hospital, Clinic, 5 P. M.; supper, 7 P. M. Dr. George Minot, "Pernicious Anemia, with Special Reference to Liver Diet." Discussion by Drs. Sargent of Salem and Reynolds of Danvers, ten minutes each.

Wednesday, April 6, 1927—Danvers State Hospital, Clinic, 5 P. M. Dr. Allan W. Rose, Chief of Research Service at Evans Memorial, "The Differential Diagnosis of Endocrine Disorders." Followed by dinner. Discussion by Dr. Wood of Haverhill and Kline of Beverly, ten minutes each.

Thursday, May 5, 1927—Censors meet for examination of candidates at the Salem Hospital, 3:30 P. M.

Wednesday, May 11, 1927—Annual meeting. The Tavern, Gloucester. Speaker and subject to be announced later.

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District for the remainder of the year. Minor changes may be made in case of necessity.

November 30, 1926—Roxbury Masonic Temple, 8:15 P. M. "Preventive Medicine," Drs. George H. Bigelow and Victor Sanford. Particular mention will be made of seasonal diseases prevalent during the winter months.

January 25, 1927—Peter Bent Brigham Hospital, Dr. Harvey Cushing. Time of meeting and subject to be announced.

March 1, 1927—Roxbury Masonic Temple, 8:15 P. M. Dr. Robert B. Greenough. To be devoted to a talk on cancer, with a résumé of the results of colloidal lead treatment.

March 29, 1927—Roxbury Masonic Temple, 8:15 P. M. Drs. P. S. Newell and F. J. Irving, "The Modern Treatment of the Eclampsias and Toxemias of Pregnancy." If time permits—"The Modern Methods of Handling Prospective Caesarean Cases."

May 19, 1927—Annual meeting. Details of meeting to be announced.

Suffolk District Medical Society

Meetings of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 5 The Fenway, Boston, at 8:15 P. M., as follows:

November 17, 1926—Surgical Section, "The Relation of the Urologist to the General Practitioner," Dr. Henry B. Bugbee, New York City.

December 15, 1926—Medical Section, "Diagnosis and Treatment of Scarlet Fever and Certain Aspects of Other Contagious Diseases," Dr. Edwin H. Place.

January 26, 1927—General meeting in association with the Boston Medical Library, "Medical Work at the Metropolitan Life Insurance Company," Dr. Augustus I. Knight, Medical Director, Metropolitan Life Insurance Company.

February 23, 1927—Surgical Section, "Clinic on Neurological Cases at the Peter Bent Brigham Hospital," Dr. Harvey Cushing.

March 20, 1927—Medical Section. Subject and speaker to be announced later.

April 27, 1927—Annual meeting. Election of officers, "Medical Education in the Orient and Occident," Dr. David L. Edsall, Dean, Harvard Medical School.